

Amherst Street Improvements – Charron Avenue to Diesel Road

IFB0851-081015

Construction Specifications and Contract Documents



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Prepared For:

**City of Nashua, New Hampshire
Division of Public Works
Engineering Department**

July 14, 2015

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DIVISION 1
INVITATION FOR BID



City of Nashua

Central Purchasing

229 Main Street

Nashua NH 03061-2019

July 14, 2015

INVITATION FOR BID

Amherst Street Improvements – Charron Avenue to Diesel Road IFB0851-081015

The City of Nashua, NH invites qualified firms to submit bids for construction related to the **Amherst Street Improvements – Charron Avenue to Diesel Road Project**. The Contract will be awarded following approval by both the Board of Public Works and the Board of Aldermen.

The scheduled work for the **Amherst Street Improvements project** consists of work on Amherst Street from approximately 450 feet west of Charron Avenue to the intersection of Diesel Road (to the west of Route 3), and on Charron Avenue for approximately 350 from the intersection of Amherst Street, including the signalized intersections. The work includes but is not limited to the following: excavation, modifying and installing drainage structures and pipes, curb installation, full depth roadway construction/widening, pavement milling and overlay, cement concrete sidewalk and wheelchair ramps, hot bituminous sidewalk, utility relocations, traffic signing and pavement markings, spreading loam and seed, traffic control management during construction, and other street improvements.

Work also includes the removal of existing traffic signals and installation of new traffic control signals at the Amherst Street intersections with Charron Avenue and the Turnpike Plaza Driveway.

INSTRUCTIONS TO BIDDERS

Bids must be submitted in **triplicate (one (1) original and two (2) copies)** no later than **3:00 p.m. on Monday, August 10, 2015** c/o Central Purchasing Department, Lower Level, 229 Main St, City Hall, Nashua, NH 03060 in a sealed envelope clearly marked **“Amherst Street Improvements – Charron Avenue to Diesel Road Project”**. Postmarks or other timestamps will not be accepted in lieu of actual delivery. The contractor can use whatever delivery mechanism it chooses as long as it remains clear that the contractor is responsible for submissions prior to the date and time. Further details are available on the City's web site, www.nashuanh.gov, under Citizens Favorites, Current Bid Opportunities **IFB0851-081015**. Bids will be opened in public on the due date and time. Results of the bid opening will be posted on the City's web site, under Bid Results, within twenty-four (24) hours of the opening.

Completion Time for the project will be calculated as calendar days from the date specified in the **“Notice to Proceed”** as follows:

70 Calendar days

for substantial completion*.

280 Calendar days

for total contract completion.

* - Substantial completion shall be defined as a project that is functionally complete (all new travel lanes to paved to binder and usable and new traffic signals operational. Final paving and punch lists may still be outstanding.

Liquidated damages will be in the amount of **\$500.00** for each calendar day of delay from the date established for substantial completion, and **\$500.00** for each calendar day of delay from the date established for total contract completion.

A **mandatory pre-bid conference** will be held at **1:00 pm, July 21, 2015** in the DPW conference room at **9 Riverside Street, Nashua, NH 03062**. **You or your representative(s) are required to attend this meeting if you intend to submit a bid**. The meeting is an opportunity for the City to overview the project

and objectives, and participants to request additional information directly from City staff managing or participating in the project.

Beginning at noon on Tuesday, July 14, 2015, plans/bid documents will be available electronically from the City website www.nashuanh.gov – Citizen's Favorites – Current Bid Opportunities – document **IFB0851-081015**. Please note paper copies will not be available.

No bid documents are available at the Central Purchasing Offices

To be eligible for an award, a bidder must be deemed "responsible". A responsible bidder 1) has the ability, capacity and skill to provide the goods or services required; 2) can provide the goods or services within the time frame specified; 3) has a satisfactory record of integrity, reputation, judgment and experience; 4) has sufficient financial resources to provide the goods or services; 5) has an ability to provide future maintenance and support as required; and 6) has developed a positive track record with the City of Nashua to the extent the bidder has previously provided goods or services.

Bids must be submitted in the format provided and address the items specified in the bid package.

Delivery of the Bids shall be at the Vendor's expense. The time of receipt shall be considered when a Bid has been officially documented by the Department, in accordance with its established policies, as having been received at the location designated above. The City of Nashua accepts no responsibility for mislabeled mail. Any and all damage that may occur due to shipping shall be the Vendor's responsibility.

Postmarks or other timestamps will **not** be accepted in lieu of actual delivery. The firm can use whatever delivery mechanism it chooses as long as it remains clear that the firm is responsible for submissions prior to the date and time.

The City of Nashua assumes no liability for the payment of costs and expenses incurred by any bidder in responding to this request for bids. All bids become the sole property of the City of Nashua. This request for bids is not a contract and alone shall not be interpreted as such but rather serves as an instrument through which bids are solicited.

The City of Nashua may reject any or all of the bids on any basis and without disclosure of a reason. The failure to make such a disclosure shall not result in accrual of any right, claim or cause of action by any unsuccessful bidder against the City of Nashua. The City reserves the right to waive any irregularities when the public interest will be served thereby. The City also reserves the right to negotiate any change or amendment in any bid without soliciting further bids if the action is necessary for the best interest of the City. A bid that is abnormally high or low for any bid item, or as a whole, may be rejected as unbalanced.

No bid will be considered unless accompanied by a bid security in the form of a Bid Bond, in an amount not less than five percent (5%) of the Total Bid Price.

All bids are binding for sixty (60) days following the deadline for bids, or until the effective date of any resulting contract, whichever is later.

The project timeline is as follows:

	Date	Time
Bid Documents Available	Tuesday, July 14, 2015	12:00 pm (Noon)
		1:00 pm DPW Conference Room 9 Riverside Street, Nashua, NH
Mandatory Pre-bid Meeting	Tuesday, July 21, 2015	
Deadline for Questions to be submitted in writing	Wednesday, July 29, 2015	3:00 pm
Answers/clarifications posted	Friday, July 31, 2015	4:00 pm
Bid Due	Monday, August 10, 2015	3:00 pm Purchasing Department

Vendors are encouraged to submit questions via email; however, the City assumes no liability for assuring accurate and complete email transmission/receipt and is not responsible to acknowledge receipt. **Inquiries must be submitted in writing**, citing the IFB title, IFB number, Page, Section, and received **no later than Wednesday, July 29, 2015 at 3:00 pm to:**

Jeanne Walker, P.E.
Division of Public Works
9 Riverside Street
Nashua NH 03062
Email: WalkerJ@nashuanh.gov

The City will consider all timely-received questions and requests for change and, if reasonable and appropriate, will issue an addendum to clarify or modify this IFB. Answers to vendor submitted questions and other addenda will be posted under document **IFB0851-081015** on the City of Nashua website; www.nashuanh.gov under Citizen Favorites, Current Bid Opportunities no later than **Friday, July 31, 2015 at 4:00 pm.**

The successful bidder must maintain the following lines of coverage and policy limits for the duration of the contract. Any subcontractors used by the successful bidder are subject to the same coverage and limits and is a subcontractor of the successful bidder and not the City of Nashua. It is the responsibility of the successful bidder to update Certificates of Insurance during the term of the contract. Liability limits are as follows:

- General Liability: \$1,000,000 per Occurrence
 \$2,000,000 Aggregate
- Motor Vehicle
 Liability: \$1,000,000 Combined Single Limit
- *Coverage must include all owned, non-owned and hired vehicles.**
- Workers' Compensation Coverage according to Statute of the State of New Hampshire:
 \$100,000 / \$500,000 / \$100,000

The City of Nashua must be named as an additional insured on all liability certificates.

All bidders and subcontractors at every tier under the bidder will fully comply with NH RSA Chapter 281-A, "Workers' Compensation". It is the responsibility of the CONTRACTOR to submit to the OWNER certificates of insurance for the Designer and all other subcontractors prior to the start of the project. It is the responsibility of the CONTRACTOR to provide the OWNER with updated certificates of insurance for the CONTRACTOR and all subcontractors 10 days prior to the expiration of coverage. The OWNER may, at any time, order the CONTRACTOR to stop work, suspend the contract or terminate the contract for non-compliance. All subcontractors except for Designer are subject to the same insurance requirements as the CONTRACTOR.

The successful bidder will be required to post a 100% Performance Bond and a 100% Payment Bond in an amount equal to the Contract Award.

The City of Nashua would like to emphasize the importance of construction work zone safety. The City has adopted the provisions of the Manual on Uniform Traffic Control Devices (MUTCD) for work zone safety. Unless otherwise indicated in this contract, the contract shall follow the requirements of the MUTCD at all roadway construction work zones.

The City is exempt of all taxes. All bids must be FOB Nashua, NH. All bidders must comply with all applicable Equal Employment Opportunity laws and regulations.

Pursuant to NRO 5-78 (F), the purchasing manager shall not solicit a bid from a contractor who is in default on the payment of taxes, licenses or other monies due the city. Therefore, this bid request is void as to anyone who is in default on said payments.

Questions relating to this request may be directed to Jeanne Walker at: walkerj@nashuanh.gov.

Respectfully,

Purchasing Manager
City of Nashua

DIVISION 2
INSTRUCTIONS TO BIDDERS

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INSTRUCTIONS TO BIDDERS

Article 1 – Defined Terms

- 1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:
- A. *Bidder* – The individual or entity who submits a Bid directly to OWNER.
 - B. *Issuing Office* – The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
 - C. *Successful Bidder* – The lowest responsible Bidder submitting a responsive Bid to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award.

Article 2 – Copies of Bidding Documents

- 2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement or Invitation to Bid may be obtained from the Issuing Office.
- 2.02 Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER nor ENGINEER assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

Article 3 – Qualifications of Bidders.

- 3.01 To demonstrate Bidder's qualifications to perform the Work, each Bidder must submit a completed Construction Contractor's Qualification for Engineered Projects..

Article 4 – Examination of Bidding Documents, Other Related Data, and Site.

- 4.01 *Subsurface and Physical Conditions*
- A. The Supplementary Conditions identify:
 - 1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that ENGINEER has used in preparing the Bidding Documents.
 - 2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Bidding Documents.
 - B. Copies of reports and drawings referenced in paragraph 4.01.A will be made available by OWNER to any Bidder on request. Those reports and drawings are

not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in paragraph 4.02 of the General Conditions has been identified. Bidder is responsible for any interpretation or conclusion Bidder draws from and “technical data” or any other data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings.

4.02 *Underground Facilities*

- A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the site is based upon information and data furnished to OWNER and ENGINEER by owners of such Underground Facilities including OWNER, or others. OWNER and ENGINEER do not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.

4.03 *Hazardous Environmental Condition*

- A. The Supplementary Conditions identify those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that ENGINEER has used in preparing the Bidding Documents.
- B. Copies of reports and drawings referenced in paragraph 4.03.A will be made available by OWNER to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in paragraph 4.06 of the General Conditions has been identified. Bidder is responsible for any interpretation or conclusion Bidder draws from and “technical data” or any other data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings.

4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Conditions at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work appear in paragraph 4.06 of the General Conditions.

4.05 On request, OWNER will provide each Bidder access to the site to conduct such examinations, investigations, explorations, tests and studies, as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the site to its former conditions upon completion of such explorations, investigations, tests and studies.

4.06 Reference is made to Article 7 of the General Conditions for the identification of the general nature of work that is to be performed at the site by OWNER or others (such as

utilities and other prime contractors) that relates to the work for which a Bid is to be submitted. On request, OWNER will provide to each Bidder for examination access to or copies of Contract Documents (other than portions thereof related to price) for such other work.

4.07. It is the responsibility of each Bidder before submitting a Bid to:

- A. Examine and carefully study the Bidding Documents, including any Addenda and other related data identified in the Bidding Documents;
- B. Visit the Site to become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. Become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, performance of the Work;
- D. Carefully study all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions, and carefully study all reports and drawings of a Hazardous Environmental Condition, if any, at the Site which have been identified in the supplementary Conditions as provided in paragraph 4.06 of the General Conditions;
- E. Obtain and carefully study (or assume responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;
- F. Agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;
- G. Become aware of the general nature of the work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. Correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;

- I. Promptly give ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by ENGINEER is acceptable to Bidder; and
 - J. Determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.
- 4.08 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying the specific means, methods, techniques, sequences or procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities and discrepancies that Bidder has discovered in the Contract Documents and the written resolutions thereof by ENGINEER is acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

Article 5 – Pre-bid Conference

- 5.01 A pre-bid conference will be held on the date and time prescribed and at the place indicated in the Advertisement or Invitation to Bid. Representatives of OWNER and ENGINEER will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. OWNER will transmit to all prospective Bidders of record such Addenda, as OWNER considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

Article 6 – Site and Other Areas

- 6.01 The Site is identified in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by OWNER unless otherwise provided in the Bidding Documents.

Article 7 – Interpretations and Addenda

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be directed to ENGINEER. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by ENGINEER as having received the Bidding Documents. Questions received less than ten (10) days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 7.02 Addenda may also be issued to clarify, correct, or change the Bidding Documents as deemed advisable by OWNER or ENGINEER.

Article 8 – Bid Security

- 8.01 A Bid must be accompanied by Bid security made payable to OWNER in an amount of five percent of Bidder's maximum Bid price and in the form of a Bid Bond (on form attached) issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.
- 8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, OWNER may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the earlier of seven days after the Effective Date of the Agreement or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.
- 8.03 Bid security of other Bidders whom OWNER believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

Article 9 – Contract Times

- 9.01 The number of calendar days within which, or the dates by which, the Work is to be (a) substantially completed and (b) also completed and ready for final payment are set forth in the Agreement.

Article 10 – Liquidated Damages

- 10.01 Provisions for liquidated damages, if any, are set forth in the Agreement.

Article 11 – Substitute and “Or-Equal” Items

- 11.01 The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or “or-equal” items. Whenever it is specified or described in the Bidding Documents that a substitute or “or-equal” item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in the General Conditions and may be supplemented in the General Requirements.

Article 12 – Subcontractors, Suppliers and Others

- 12.01 Each Bidder must submit a completed List of Subcontractors on the Form furnished with the completed Bid Form. The apparent Successful Bidder, and any other Bidder so requested, shall within seven days after the Bid opening submit to OWNER supplemental information in the form of an experience statement with the pertinent

information regarding similar projects and other evidence of qualification of each Subcontractor, Supplier, person or organization if requested by OWNER or ENGINEER. IF OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, OWNER may, before the Notice of Award is given request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall submit an acceptable substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution and OWNER may consider such price adjustment in evaluating Bids and making the contract award.

- 12.02 If apparent Successful Bidder declines to make any such substitution, OWNER may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which OWNER or ENGINEER makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Article 6.06 of the General Conditions.
- 12.03 CONTRACTOR shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom CONTRACTOR has reasonable objection.

Article 13 – Preparation of Bid

- 13.01 The Bid Form is included with the Bidding Documents. Additional copies may be obtained from ENGINEER (or the Issuing Office).
- 13.02 All blanks on the Bid Form and Bid Schedule(s) must be completed by printing in ink or by typewriter and the Bid signed. A bid price shall be indicated for each Bid item listed therein.
- 13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.
- 13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown below the signature.
- 13.05 A bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown below the signature.
- 13.06 A Bid by an individual shall show the Bidder's name and official address.

- 13.07 A Bid by a joint venture shall be executed by each joint ventured in the manner indicated on the Bid Form. The official address of the joint venture must be shown below the signature.
- 13.08 All names must be typed or printed in black ink below the signatures.
- 13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 13.10 The address and telephone number for communications regarding the Bid must be shown.
- 13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located. Bidder's state contractor license number for the state of the Project, if any, must also be shown on the Bid Form.

Article 14 – Basis of Bid; Evaluation of Bids

14.01 *Unit Price*

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.
- B. The total of all estimated prices will be determined as the sum of the products of the estimated quantity of each item and the unit price Bid for each item. The final quantities and Contract Price will be determined in accordance with paragraph 11.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

- 14.02 The Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowance, if any, named in the Contract Documents as provided in paragraph 11.02 of the General Conditions.

Article 15 – Submittal of Bid

- 15.01 Each prospective Bidder is furnished one copy of the Bidding Documents with one separate unbound copy each of the Bid Form, and if required, the Bid Bond. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the following data:
- A. List of Subcontractors
 - B. Construction Contractor's Qualification Statement for Engineering Construction

- 15.02 A bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to Bid and shall be enclosed in an opaque sealed envelope plainly marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to City of Nashua Purchasing Department, P.O. Box 2019, 229 Main Street, Nashua, NH, 03061-2019.

Article 16 – Modification and Withdrawal of Bid

- 16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.
- 16.02 If, within twenty-four hours after Bids are opened any Bidder files a duly signed written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, **OWNER may, in its sole discretion, choose to not accept the Bid and return the same to Bidder.** Thereafter, that Bidder will be disqualified from further bidding on the Work.

Article 17 – Opening of Bids

- 17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to Bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids through posting on the City's website.

Article 18 – Bids to Remain Subject to Acceptance

- 18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but OWNER may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

Article 19 – Award of Contract

- 19.01 OWNER reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced or conditional Bids. OWNER further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsive. OWNER may also reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder. OWNER also reserves the right to waive all informalities not involving price, time or changes in the Work and to negotiate contract terms with the Successful Bidder.
- 19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any

Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

- 19.03 In evaluating Bids, OWNER will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 19.04 In evaluating Bidders, OWNER will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions..
- 19.05 OWNER may conduct such investigations as OWNER deems necessary to establish the responsibility, qualifications and financial ability of Bidders, proposed Subcontractors, Suppliers individuals, or entities to perform the Work in accordance with the Contract Documents.
- 19.06 If the Contract is to be awarded, OWNER will award the Contract to lowest Bidder whose evaluation by OWNER indicates to OWNER that the award will be in the best interests of the Project.

Article 20 - Contract Security

20.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth OWNER's requirements as to Performance and Payment Bonds and insurance. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by such Bonds.

Article 21 – Signing of Agreement

21.01 When OWNER gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents, which are identified in the Agreement attached thereto. The Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER, including the Performance and Payment Bonds and the Certificate of Insurance. Within 10 days thereafter, OWNER shall deliver one fully signed counterpart to Successful Bidder with a complete set of drawings with appropriate identification.

21.02 A fully executed City of Nashua Purchase Order will accompany the fully signed counterpart to successful Bidder.

Article 22 – Retainage

22.01 Provisions concerning retainage and Contractors' rights to deposit securities in lieu of retainage are set forth in the Agreement.

Article 23 – Appeal by Bidders

- 23.01 Any bidder may appeal a pending bid award prior to award by Owner. The appellant must:
- A. Submit a written protest to the Owner's contract administrator within five (5) workdays after the bid opening.
 - B. Describe, in the written protest, the issues to be addresses on appeal.
 - C. Post, with the written protest, a bond with a surety meeting the requirements of General Condition 5.02 authorized to do business in this state or submit other security in a form approved by Owner who will hold the bond or security until a determination is made on the appeal.
 - D. Post the bond or other security in the amount of 25% of the total dollar value of the appellant's bid, up to a maximum bond or other security amount of 250,000.00.
 - E. Not seek any type of judicial intervention until Owner has rendered its final decision on the protest.
- 23.02 Owner will stay award actions until after the Owner's contract administrator has responded in writing to the protest. If the appellant is not satisfied with the response, the appellant may then protest to the Board of Public Works, who will render a final decision for the Owner. No bid protests will be heard by the Board of Public Works unless bidder has followed the appeal process.
- 23.03 If an appeal is granted, the full amount of the posted bond or security will be returned to the appellant. If the appeal is denied or not upheld, a claim may be made against the bond for expenses suffered by the Owner because of the unsuccessful appeal.
- 23.04 Owner is not liable for any costs, expenses, attorney's fees, loss of income, or other damages sustained by the appellant in a bid process.

DIVISION 3
BID FORM
SCHEDULE OF VALUES
BID BOND
CONTRACTOR'S QUALIFICATIONS

BID FORM

PROJECT: Amherst Street Improvements – Charron Avenue to Diesel Road

THIS BID IS SUBMITTED TO: City of Nashua
Purchasing Department
229 Main Street, City Hall
Nashua, NH 03061-2019

1.01 The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an agreement with OWNER in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

2.01 BIDDER accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. The Bid will remain subject to acceptance for 60 days after the day of Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of OWNER.

3.01 In submitting this Bid, BIDDER represents, as set forth in the Agreement, that:

- A. BIDDER has examined and carefully studied the Bidding Documents and the following Addenda, receipt of all which is hereby acknowledged.

Addendum No.

Addendum Date

- B. BIDDER has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.
- C. BIDDER is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.
- D. BIDDER has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by BIDDER, and safety precautions and programs incident thereto.

- E. BIDDER does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
- F. BIDDER is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents.
- G. BIDDER has correlated the information known to BIDDER, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
- H. BIDDER has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that BIDDER has discovered in the Bidding Documents, and the written resolution thereof by ENGINEER is acceptable to BIDDER.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance of the Work for which this Bid is submitted.

4.01 BIDDER further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any individual or entity to refrain from bidding; and BIDDER has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

5.01 The requirements of the New Hampshire Revised Statutes Annotated shall apply to this project. The BIDDER is responsible for compliance with all applicable statutes. The entire set of the Revised Statutes Annotated is available online at:

<http://gencourt.state.nh.us/rsa/html/indexes/default.html>

6.01 BIDDER will complete the Work in accordance with the Contract Documents for the following prices:

SEE ATTACHED BID SCHEDULE

- A. Unit Prices have been computed in accordance with paragraph 11.03.B of the General Conditions.
- B. BIDDER acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities provided, determined as provided in the Contract Documents.

7.01 BIDDER agrees that the Work will be substantially completed and completed and ready for final payment in accordance with paragraph 14.07.B of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

7.02 BIDDER accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified in the Agreement.

8.01 The following documents are attached to and made a condition of this Bid:

- A. Bid Form;
- B. Bid Bond;
- C. A tabulation of Subcontractors, Suppliers and other individuals and entities required to be identified in this Bid; and
- D. Construction Contractor's Qualification Statement for Engineered Construction.

9.01 Communications concerning this Bid shall be addressed to:
(Contractor's mailing address to be filled in by Bidder)

10.01 The terms used in this Bid with initial capital letters have the meanings indicated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

SUBMITTED on _____, 20_____

If BIDDER is:

An Individual

Name (typed or printed): _____

By: _____ (SEAL)

(Individual's Signature)

Doing business as: _____

Business address: _____

Phone No.: _____ Fax No.: _____

A Partnership

Partnership Name: _____ (SEAL)

By: _____

(Signature of General Partner – attach evidence of authority to sign)

Name (typed or printed): _____

Business address: _____

Phone No.: _____ Fax No.: _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____

(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____ (Corporate Seal)

Attest: _____

(Signature of Corporate Secretary)

Business Address: _____

Phone No.: _____ Fax No.: _____

Date of Qualification to do business is _____

A Joint Venture

Joint Venture Name: _____ (SEAL)

By: _____

(Signature of joint ventured partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business Address: _____

Phone No.: _____ Fax No.: _____

Joint Venture Name: _____(SEAL)

By: _____

(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business Address: _____

Phone No.: _____ Fax No.: _____

Phone and FAX Number, and Address for receipt of official communications:

(Each joint ventured must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above).

LIST OF SUBCONTRACTORS
(to be submitted with bid)

The name and address of each subcontractor who will be paid at least five percent (5%) of the prime contractor's total bid shall be listed below. To be deemed a responsive bid, this form must be submitted even if no subcontractors are required to be listed. In that case, the bidder should state "None" (or similar language stating that no subcontractors need to be listed) in the space below. (Refer to General Condition 6.09.H)

[illegible]

LIST OF SUBCONTRACTORS
(to be submitted after bid opening)

Within two hours after the completion of the opening of the bids, the general contractors who submitted the three lowest bids must provide a list of each subcontractor who will provide labor or a portion of the work or improvement to the contractor for which the subcontractor will be paid an amount exceeding one percent (1%) of the prime contractor's bid or \$50,000, whichever is greater, and the number of the license issued to the subcontractor. **If a general contractor fails to submit such a list within the required time, the bid shall be deemed not responsive.** To be deemed a responsive bid, this form must be submitted even if no subcontractors are required to be listed. In that case, the bidder should state "None" (or similar language stating that no subcontractors need to be listed) in the space below. (Refer to General Condition 6.09.H.)

Subcontractor/Address

**Dollar Value and
description of work**

[illegible]

SCHEDULE OF VALUES - BID FORM**UNIT PRICES**

**Amherst Street Improvements - Charron Avenue to Diesel Road
Nashua, New Hampshire**

ITEM NO.	QUANTITY	ITEM DESCRIPTION WITH BID PRICE IN WORDS	UNIT COST	AMOUNT
201.21	6	Removing Small Trees at: Dollars Cents per each		
202.5	1	Removal of Catch Basins, Drop Inlets and Manholes at: Dollars Cents per each		
203.3	6,900	Unclassified Excavation at: Dollars Cents per cubic yard		
304.2	1,300	Gravel (F) at: Dollars Cents per cubic yard		
304.3	1,700	Crushed Gravel (F) at: Dollars Cents per cubic yard		
403.01	40	Stamped Hot Bituminous Pavement at: Dollars Cents per square yard		
403.11	2,800	Hot Bituminous Pavement, Machine Method at: Dollars Cents per ton		
403.12	100	Hot Bituminous Pavement, Hand Method at: Dollars Cents per ton		
417.	13,200	Cold Planing Bituminous Surfaces at: Dollars Cents per square yard		
603.00212	220	12" R.C. Pipe, 2000D at: Dollars Cents per linear foot		
604.12	8	Catch Basins Type B, 4-foot Diameter at: Dollars Cents per unit		

SCHEDULE OF VALUES - BID FORM**UNIT PRICES**

**Amherst Street Improvements - Charron Avenue to Diesel Road
Nashua, New Hampshire**

ITEM NO.	QUANTITY	ITEM DESCRIPTION WITH BID PRICE IN WORDS	UNIT COST	AMOUNT
604.125	1	Catch Basins Type B, 5-foot Diameter at: Dollars Cents per unit		
604.32	1	Drainage Manholes at: Dollars Cents per unit		
604.4	30	Reconstructing/Adjusting Catch Basin & Drop Inlet at: Dollars Cents per linear foot		
604.5	10	Reconstructing/ Adjusting Manholes at: Dollars Cents per linear foot		
604.51	15	Reconstructing/ Adjusting Sewer Manholes at: Dollars Cents per linear foot		
604.62	12	Drainage Manholes Covers and Frames at: Dollars Cents per each		
608.13	1,000	3" Bituminous Sidewalk (F) at: Dollars Cents per square yard		
608.24	500	4" Concrete Sidewalk (F) at: Dollars Cents per square yard		
608.54	30	Detectable Warning Devices, Cast Iron at: Dollars Cents per square yard		
609.01	350	Straight Granite Curb at: Dollars Cents per linear foot		
609.02	200	Curved Granite Curb at: Dollars Cents per linear foot		

SCHEDULE OF VALUES - BID FORM**UNIT PRICES**

**Amherst Street Improvements - Charron Avenue to Diesel Road
Nashua, New Hampshire**

ITEM NO.	QUANTITY	ITEM DESCRIPTION WITH BID PRICE IN WORDS	UNIT COST	AMOUNT
609.21	700	Straight Granite Slope Curb at: Dollars Cents per linear foot		
609.22	60	Straight Granite Curb with Radial Joints at: Dollars Cents per linear foot		
609.23	50	Curved Granite Slope Curb at: Dollars Cents per linear foot		
609.5	3,450	Reset Granite Curb at: Dollars Cents per linear foot		
614.511	12	Concrete Pull Box 14" at: Dollars Cents per each		
614.73118	650	3" PVC Conduit, Schedule 80 at: Dollars Cents per linear foot		
615.003	34	Removing Traffic Sign at: Dollars Cents per unit		
615.03	200	Traffic Sign Type C (F) at: Dollars Cents per square foot		
615.034	2	Relocating Traffic Sign, Type C at: Dollars Cents per unit		
615.06	220	Traffic Sign Type CC (F) at: Dollars Cents per square foot		
616.101	1	Traffic Signals at: Dollars Cents per unit		

SCHEDULE OF VALUES - BID FORM**UNIT PRICES**

**Amherst Street Improvements - Charron Avenue to Diesel Road
Nashua, New Hampshire**

ITEM NO.	QUANTITY	ITEM DESCRIPTION WITH BID PRICE IN WORDS	UNIT COST	AMOUNT
618.61	Allowance	Uniformed Officers with Vehicle Allowance per hour	---	\$ 61,000.00
618.7	1,000	Flaggers at: Dollars Cents per hour		
619.1	1	Maintenance of Traffic at: Dollars Cents per unit		
619.253	32	Portable Changeable Message Sign (Unit Week) at: Dollars Cents per unit week		
621.332	2	Single Delineator Double Faced with Post (Yellow) at: Dollars Cents per each		
622.2	5	Concrete Bounds at: Dollars Cents per each		
628.2	4,600	Sawed Bituminous Pavement at: Dollars Cents per linear foot		
632.0104	13,500	Retroreflective Paint Pave. Marking, 4" Line at: Dollars Cents per linear foot		
632.0108	500	Retroreflective Paint Pave. Marking, 8" Line at: Dollars Cents per linear foot		
632.3118	500	Retroreflect. Thermoplas. Pave. Marking 18" Line at: Dollars Cents per linear foot		
632.3124	1,400	Retroreflect. Thermoplas. Pave. Marking 24" Line at: Dollars Cents per linear foot		

SCHEDULE OF VALUES - BID FORM**UNIT PRICES****Amherst Street Improvements - Charron Avenue to Diesel Road
Nashua, New Hampshire**

ITEM NO.	QUANTITY	ITEM DESCRIPTION WITH BID PRICE IN WORDS	UNIT COST	AMOUNT
632.32	850	Retroreflect. Thermoplas. Pave. Marking, Symbol or Word at: Dollars Cents per square foot		
632.92	950	Obliterate Pavement Marking, Symbol or Word at: Dollars Cents per square foot		
641.	220	Loam at: Dollars Cents per cubic yard		
643.11	300	Fertilizer for Initial Application at: Dollars Cents per pound		
644.15	40	Park Seed Type 15 at: Dollars Cents per pound		
645.154	80	Bark Mulch 4 Inches Deep at: Dollars Cents per square yard		
645.6	20	Silt Sacks at: Dollars Cents per each		
645.7	1	Storm Water Pollution Prevention Plan at: Dollars Cents per unit		

Total Bid Price (sum of all items above)**Total Bid Price (Words):**

Contractor Name and Address:

Contractor Phone:

Contractor E-mail

Contractor Signature and Date:

IFB0851-081015

Amherst Street Improvements

BID BOND PENAL SUM FORM

BIDDER (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

BID

BID DUE DATE: _____

PROJECT (Brief Description Including Location):

BOND

BOND NUMBER: _____

DATE: (Not later than Bid Due Date): _____

PENAL SUM: _____ (Words) _____ (Figures)

IN WITNESS WHEREOF, Surety and Bidder, Intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause the Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER

SURETY

_____(Seal)
Bidder's Name and Corporate Seal

_____(Seal)
Surety's Name and Corporate Seal

By: _____
Signature and Title

By: _____
Signature and Title
(Attach Power of Attorney)

Attest: _____
Signature and Title

Attest: _____
Signature and Title

Note: (1) Above addresses are to be used for giving required notice.
(2) Any singular reference to Bidder, Surety, OWNER or other party shall be considered plural where applicable.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to OWNER upon default of Bidder the penal sum set forth on the face of this Bond.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents and Contract Documents.
3. This obligation shall be null and void if:
 - 3.1. OWNER accepts Bidder's bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents and Contract Documents, or
 - 3.2 All bids are rejected by OWNER, or
 - 3.3 OWNER fails to issue a notice of award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by paragraph 5 hereof).
4. Payment under this bond will be due and payable upon default by Bidder and Within 30 calendar days after receipt by Bidder and Surety of written notice of default from OWNER, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue notice of award agreed to in writing by OWNER and Bidder, provided that the time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid Due Date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in paragraph 4 above is received by Bidder and Surety, and in no case later than one year after Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notice required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of the Bond conflicts with any applicable provision of any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer or proposal as applicable.

CONSTRUCTION CONTRACTOR'S QUALIFICATION STATEMENT FOR ENGINEERED CONSTRUCTION

Submitted by:

Name of Organization _____

Name of Individual _____

Title _____

Address _____

Telephone _____

Submitted to:

Name _____

Address _____

Telephone _____

Project Name and Description (if applicable)

Contractor' General Business Information

Check If:

☐ Corporation ☐ Partnership ☐ Joint Venture ☐ Sole Proprietorship

If Corporation:

a. Date and State of Incorporation

b. List of Executive Officers

Name

Title

If Partnership:

a. Date and State of Organization

b. Names of Current General Partners

c. Type of Partnership

☐ General ☐ Publicly Traded

☐ Limited ☐ Other (describe): _____

If Joint Venture:

a. Date and State of Organization

b. Name, Address and Form of Organization of Joint Venture Partners: (Indicate managing partner by an asterisk *)

1. On Schedule A, attached, list major engineered construction projects completed by this organization in the past five (5) years. (If joint venture, list each participant's projects separately).

2. On Schedule B, attached, list current projects under construction by this organization, (If joint venture, list each participant's projects separately).

3. Name of surety company and name, address, and phone number of agent.

4. Is your organization a member of a controlled group of corporations as defined in I.R.C. Sec. 1563?

☐ Yes ☐ No

If yes, show names and addresses of affiliated companies.

5. Furnish on Schedule C, attached, details of the construction experience of the principal individuals of your organization directly involved in construction operations.

6. Has your organization ever failed to complete any construction contract awarded to it?

☐ Yes ☐ No

If yes, describe circumstances and provide details on attachment.

7. Has any Corporate officer, partner, joint venture participant or proprietor ever failed to complete a construction contract awarded to him or her in their own name or when acting as a principal of another organization?

☐ Yes ☐ No

If yes, describe circumstances and provide details on attachment.

8. In the last five years, has your organization ever failed to substantially complete a project in a timely manner?

☐ Yes ☐ No

If yes, describe circumstances and provide details on attachment.

9. Does your organization now have any legal suits or arbitration claims pending or outstanding against it or any officers?

☐ Yes ☐ No

If yes, describe circumstances and provide details on attachment.

10. Has your organization had a contract partially or completely terminated for default (cause) within the past five years?

☐ Yes ☐ No

If yes, describe circumstances and provide details on attachment.

11. List the licensed categories of work that your company normally performs with its own workforce. _____

12. If required, can your organization provide a bid bond for this project?

☐ Yes ☐ No

13. What is your approximate total bonding capacity?

☐ \$500,000 to \$2,000,000

☐ \$2,000,000 to \$5,000,000

☐ \$5,000,000 to \$10,000,000

☐ \$10,000,000 or more

14. Describe the permanent safety program you maintain within your organization. Use attachment if necessary.

15. Furnish the following information with respect to an accredited banking institution familiar with your organization.

Name of Bank _____

Address _____

Account Manager _____

Telephone _____

I hereby certify that the information submitted herewith, including any attachment is true to the best of my knowledge and belief.

By: _____

Title: _____

Dated: _____

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Schedule A – List of Major Engineered Construction Projects Completed in the Past Five (5) Years

<u>Name, Location and Description of Project</u>	<u>Owner</u>	<u>Design Engineer</u>	<u>Date Completed</u>	<u>Contract Price</u>	<u>Reference/Contact & Address & Phone</u>
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Schedule B – List of Current Projects Under Construction

<u>Name, Location and Description of Project</u>	<u>Owner</u>	<u>Design Engineer</u>	<u>Contract Price</u>	<u>Amount Completed</u>	<u>Date of Scheduled Completion</u>	<u>Reference/Contact & Address & Phone</u>
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Schedule C - Construction Experience of Principal Individuals Involved in Construction Operations

<u>Name</u>	<u>Position</u>	<u>Date started with this organization</u>	<u>Date started working in construction</u>	<u>Prior positions and experience in construction</u>
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**DIVISION 4
PERFORMANCE
AND
PAYMENT BONDS**

CONSTRUCTION PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called Principal,
(Corporation, Partnership or Individual)

and _____
(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

(Name of Owner)

(Address of Owner)

hereinafter called **OWNER**, in the total aggregate penal sum
of

Dollars, \$ _____)

in lawful money of the United States, for the payment of which sum well and truly to be made,
we bind ourselves, our heirs, executors, administrators successors, and assigns, jointly and
severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a
certain contract with the **OWNER**, dated _____ day of _____ 20____, a
copy of which is hereto attached and made a part hereof for the construction of:

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the
undertakings, covenants, terms, conditions, and agreements of said contract during the original
term thereof, and any extension thereof which may be granted by the **OWNER**, with or without
notice to the Surety and during the one year guaranty period, and if the **PRINCIPAL** shall
satisfy all claims and demands incurred under such contract, and shall fully indemnify and save
harmless the **OWNER** from all costs and damages which it may suffer by reason of failure to do
so, and shall reimburse and repay the **OWNER** all outlay and expense which the **OWNER** may
incur in making good any default, then this obligation shall be void: otherwise to remain in full
force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to **WORK** to be performed thereunder or the specifications accompanying same shall in any way affect its obligation on this **BOND**, and it does hereby waive notice of any such change, extension of time alteration or addition to the terms of the contract or to the **WORK** or to the specifications.

PROVIDED, FURTHER, that it is expressly agreed that this **BOND** shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the contract price more than 20 percent, so as to bind the **PRINCIPAL** and the **SURETY** to the full and faithful performance of the Contract as so amended. The term "Amendment", wherever used in this **BOND** and whether referring to this **BOND**, the contract or the loan Documents shall include any alteration, addition, extension or modification of any character whatsoever.

PROVIDED, FURTHER, that no final settlement between the **OWNER** and the **CONTRACTOR** shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed _____ counterparts, each one of
(number)

which shall be deemed an original,
this _____ day of _____, 20 ____ .

ATTEST:

By: _____
(Principal) Secretary

(SEAL)

BY

Principal

(Address)

By: _____
Witness as to Principal

(Address)

ATTEST:

BY

(Surety)

Attorney - in - Fact

By _____
Witness as to Surety

(Address)

(Address)

NOTE: Date of **BOND** must not be prior to date of Contract.

If **CONTRACTOR** is Partnership, all partners should execute BOND

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of New Hampshire

CONSTRUCTION PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called Principal,
(Corporation, Partnership or Individual)

and _____
(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

(Name of Owner)

(Address of Owner)

hereinafter called **OWNER** and unto all persons, firms, and corporations who or which may furnish labor, or who furnish materials to perform as described under the contract and to their successors and assigns, in the total aggregate penal sum of _____ Dollars, (\$ _____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the **OWNER**, dated the _____ day of _____ 20____, a copy of which is hereto attached and made a part hereof for the construction of:

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, and corporations furnishing materials for or performing labor in the prosecution of the **WORK** provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such **WORK**, and for all labor cost incurred in such **WORK** including that be a subcontractor, and to any mechanic or material man lienholder whether it acquires its lien by operation of State or Federal Law; then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, that beneficiaries or claimants hereunder shall be limited to the subcontractors, and persons, firms, and corporations having a direct contract with the PRINCIPAL or its SUBCONTRACTORS.

PROVIDED FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the **WORK** to be performed thereunder or the **SPECIFICATIONS** accompanying the same shall in any way affect its obligation on this **BOND**, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the **WORK** or to the **SPECIFICATIONS**.

PROVIDED, FURTHER that no suit or action shall be commenced hereunder by any claimant: (a) Unless claimant, other than one having a direct contract with the PRINCIPAL shall have given written notice to any two of the following: The PRINCIPAL, the OWNER, or the SURETY above named within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the PRINCIPAL, OWNER, or SURETY, at any place where an office is regularly maintained for the transaction business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer. (b) After the expiration of one (1) year following the date on which PRINCIPAL ceased work on said CONTRACT, it being understood, however, that if any limitation embodied in the BOND is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

PROVIDED, FURTHER, that it is expressly agreed that this BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the contract price more than 20 percent, so as to bind the PRINCIPAL and the SURETY to the full and faithful performance of the Contract as so amended. The term "Amendment", wherever used in this BOND and whether referring to this BOND, the contract or the loan Documents shall include any alteration, addition, extension or modification of any character whatsoever.

PROVIDED FURTHER, that no final settlement between the **OWNER** and the **CONTRACTOR** shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed
in _____ counterparts, each one of
(number)
which shall be deemed an original,
this _____ day of _____, 20 ____ .

ATTEST:

By: _____
(Principal) Secretary

(SEAL)

BY

Principal

(Address)

By: _____
Witness as to Principal

(Address)

(Surety)

ATTEST:

BY

Attorney - in - Fact

By _____
Witness as to Surety

(Address)

(Address)

NOTE: Date of **BOND** must not be prior to date of Contract.
If **CONTRACTOR** is partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing **BONDS** must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of New Hampshire.

DIVISION 5 AGREEMENT

STANDARD FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

THIS AGREEMENT is dated as of the _____ day of _____ in the year 2015 by and between the City of Nashua, New Hampshire (hereinafter called OWNER) and _____ (hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 - WORK

1.01 CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents.

ARTICLE 2 - THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

The scheduled work for the **Amherst Street Improvements project** consists of work on Amherst Street from approximately 450 feet west of Charron Avenue to the intersection of Diesel Road (to the west of Route 3), and on Charron Avenue for approximately 350 from the intersection of Amherst Street, including the signalized intersections. The work includes but is not limited to the following: excavation, modifying and installing drainage structures and pipes, curb installation, full depth roadway construction/widening, pavement milling and overlay, cement concrete sidewalk and wheelchair ramps, hot bituminous sidewalk, utility relocations, traffic signing and pavement markings, spreading loam and seed, traffic control management during construction, and other street improvements.

ARTICLE 3 - ENGINEER

3.01 The Project has been designed by:

**Greenman-Pedersen, Inc.
181 Ballardvale Street, Suite 202
Wilmington, MA 01887**

who is hereinafter called ENGINEER and who is to act as OWNER's representative, assume all duties and responsibilities, and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

ARTICLE 4 - CONTRACT TIMES

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Dates for Substantial Completion and Final Payment*

A. The Work will be substantially completed within will be substantially completed within 70 calander days after the date when the Contract Times commence to run as provided in paragraph 2.03 of the General Conditions, and completed and ready for final payment ,in accordance with paragraph 14.07 of the General Conditions, within 120 calandar days after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

A. CONTRACTOR and OWNER recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER FIVE HUNDRED dollars (\$500) for each day that expires after the time specified in paragraph 4.02 for Substantial Completion until the Work is substantially complete. After Substantial Completion, if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the time specified in paragraph 4.02 for completion and readiness for final payment or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER FIVE HUNDRED dollars (\$500) for each day that expires after the time specified in paragraph 4.02 for completion and readiness for final payment until the Work is completed and ready for final payment.

B. In the event that the CONTRACTOR fails to pay OWNER the specified liquidated damages amount within thirty (30) days of CONTRACTOR's being notified of said damages, OWNER may deduct the amount of the assessed liquidated damages from the final payment or retention withheld pursuant to Article 14 of the General Conditions.

ARTICLE 5 - CONTRACT PRICE

5.01 Subject to additions and deductions by Change Order, the OWNER shall pay CONTRACTOR, in accordance with the Contract Documents, the Contract Sum of:

(\$ _____)

The Contract Sum shall include all items and services necessary for the proper execution and completion of the Work determined below:

A. for all Unit Price Work, an amount equal to the sum of the established Unit Price for each separately identified item of Unit Price Work times the estimated quantity of that item, as indicated in the attached Bid Schedule;

B. as provided in paragraph 11.03 of the General Conditions estimated quantities are not guaranteed, and determinations of actual quantities and classification are to be made by ENGINEER as provided in paragraph 9.08 of the General Conditions. Unit prices have been computed as provided in paragraph 11.03 of the General Conditions.

ARTICLE 6 - PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

A. CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

B. CONTRACTOR shall submit Applications for Payment under this agreement directly to:

**City of Nashua
Attn: Accounts Payable
PO Box 2019
Nashua, NH 03061-2019
Atten: Jeanne Walker**

To facilitate the proper and timely payment of applications, the City of Nashua requires that all invoices contain a valid **PURCHASE ORDER NUMBER**.

6.02 *Progress Payments; Retainage*

A. *Progress Payments.* The OWNER will once each month make a progress payment to the CONTRACTOR on the basis of an estimate of the total amount of work done to the time of the estimate and its value as prepared by the CONTRACTOR and approved by the ENGINEER. All such payments will be measured by the schedule of values established in paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.

B. *Retainage.* The OWNER will retain a portion of the progress payment, each month, in accordance with the following procedures:

1. The OWNER will establish an escrow account in the bank of the OWNER'S choosing. The account will be established such that interest on the principal will be paid to the CONTRACTOR. The principal will be the accumulated retainage paid into the account by the OWNER. The principal will be held by the bank, available only to the OWNER, until termination of the contract.
2. Until the work is 50% complete, as determined by the ENGINEER, retainage shall be 10% of the monthly payments claimed. The computed amount of retainage will be deposited in the escrow account established above.
3. After the work is 50% complete, and provided the CONTRACTOR has satisfied the ENGINEER in quality and timeliness of the work, and provided further that there is no specific cause for withholding additional retainage no further amount will be withheld. The escrow account will remain at the same balance throughout the remainder of the project.

6.03 *Final Payment*

A. Upon final completion and acceptance of the Work in accordance with paragraph 14.07 of the General Conditions, OWNER shall hold 2% retainage during the **1 (one) year** warranty period and release it only after the project has been accepted.

ARTICLE 7 - CONTRACTOR'S REPRESENTATIONS

7.01 In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

A. CONTRACTOR has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

B. CONTRACTOR has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. CONTRACTOR has carefully studied all (if any): (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which has been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions.

CONTRACTOR is entitled to rely upon the general accuracy of the "technical data" as provided in paragraph 4.2 of the General Conditions. CONTRACTOR acknowledges that such reports and drawings are not Contract Documents and may not be complete for CONTRACTOR's purposes. CONTRACTOR acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the site.

E. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction, if any, expressly required by the Contract Documents to be employed by CONTRACTOR, and safety precautions and programs incident thereto.

F. CONTRACTOR does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

G. CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Contract Documents.

H. CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

I. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that CONTRACTOR has discovered in the Contract Documents, and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 8 - CONTRACT DOCUMENTS

8.01 *Contents*

- A. The Contract Documents consist of the following:
1. This Agreement;
 2. General Conditions;
 3. Supplementary Conditions;
 4. Bid Bond;
 5. Bid Form;
 6. Performance Bond;
 7. Payment Bond;
 8. Certificate of Insurance
 9. Technical Specifications as listed in Table of Contents
 10. Addenda (numbers _____ to _____, inclusive);
 11. Exhibits, as listed in the Table of Contents, to this Agreement
 12. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Written Amendments
 - b. Change Order(s)
 14. New Hampshire Department of Transportation "Standard Specifications for Road and Bridge Construction", **latest** edition, incorporated by reference.
 15. "Manual of Uniform Traffic Control Devices", **latest** edition, incorporated by reference.
 16. City of Nashua, Standard Specifications for Sewers and Drains, Approved and Adopted June 15, 1993, incorporated by reference.
 17. Fully Executed City of Nashua Purchase Order
- B. The documents listed in paragraph 8.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 8.
- D. The Contract Documents may only be amended, modified or supplemented as provided in paragraph 3.04 of the General Conditions.

ARTICLE 9 - MISCELLANEOUS

9.01 *Terms*

A. Terms used in this will have the meanings indicated in the General Conditions.

9.02. *Assignment of Contract*

A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

9.03 *Successors and Assigns*

A. OWNER and CONTRACTOR each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

9.04 *Severability*

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

9.05 *Choice of Law and Venue*

A. This Agreement shall be governed by the laws of the State of New Hampshire, and any litigation shall be brought in a court located in the State of New Hampshire.

Address for giving notices to Owner:

Division of Public Works

Address for giving notices to Contractor:

Agent for service of process:

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR and ENGINEER. All portions of the Contract Documents have been signed, initialed or identified by OWNER and CONTRACTOR or identified by ENGINEER on their behalf.

CITY OF NASHUA – OWNER

Donnalee Lozeau, Mayor City of Nashua

Date:_____

CONTRACTOR:

By:_____
(Authorized Representative)

Print Name:_____

Date:_____

DIVISION 6
GENERAL CONDITIONS

STANDARD FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

THIS AGREEMENT is dated as of the _____ day of _____ in the year 2015 by and between the City of Nashua, New Hampshire (hereinafter called OWNER) and _____ (hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 - WORK

1.01 CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents.

ARTICLE 2 - THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

The scheduled work for the **Amherst Street Improvements project** consists of work on Amherst Street from approximately 450 feet west of Charron Avenue to the intersection of Diesel Road (to the west of Route 3), and on Charron Avenue for approximately 350 from the intersection of Amherst Street, including the signalized intersections. The work includes but is not limited to the following: excavation, modifying and installing drainage structures and pipes, curb installation, full depth roadway construction/widening, pavement milling and overlay, cement concrete sidewalk and wheelchair ramps, hot bituminous sidewalk, utility relocations, traffic signing and pavement markings, spreading loam and seed, traffic control management during construction, and other street improvements.

ARTICLE 3 - ENGINEER

3.01 The Project has been designed by:

**Greenman-Pedersen, Inc.
181 Ballardvale Street, Suite 202
Wilmington, MA 01887**

who is hereinafter called ENGINEER and who is to act as OWNER's representative, assume all duties and responsibilities, and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

ARTICLE 4 - CONTRACT TIMES

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Dates for Substantial Completion and Final Payment*

A. The Work will be substantially completed within will be substantially completed within 70 calander days after the date when the Contract Times commence to run as provided in paragraph 2.03 of the General Conditions, and completed and ready for final payment ,in accordance with paragraph 14.07 of the General Conditions, within 120 calandar days after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

A. CONTRACTOR and OWNER recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER FIVE HUNDRED dollars (\$500) for each day that expires after the time specified in paragraph 4.02 for Substantial Completion until the Work is substantially complete. After Substantial Completion, if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the time specified in paragraph 4.02 for completion and readiness for final payment or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER FIVE HUNDRED dollars (\$500) for each day that expires after the time specified in paragraph 4.02 for completion and readiness for final payment until the Work is completed and ready for final payment.

B. In the event that the CONTRACTOR fails to pay OWNER the specified liquidated damages amount within thirty (30) days of CONTRACTOR's being notified of said damages, OWNER may deduct the amount of the assessed liquidated damages from the final payment or retention withheld pursuant to Article 14 of the General Conditions.

ARTICLE 5 - CONTRACT PRICE

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(\$ _____)

The Contract Sum shall include all items and services necessary for the proper execution and completion of the Work determined below:

A. for all Unit Price Work, an amount equal to the sum of the established Unit Price for each separately identified item of Unit Price Work times the estimated quantity of that item, as indicated in the attached Bid Schedule;

B. as provided in paragraph 11.03 of the General Conditions estimated quantities are not guaranteed, and determinations of actual quantities and classification are to be made by ENGINEER as provided in paragraph 9.08 of the General Conditions. Unit prices have been computed as provided in paragraph 11.03 of the General Conditions.

ARTICLE 6 - PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

A. CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

B. CONTRACTOR shall submit Applications for Payment under this agreement directly to:

**City of Nashua
Attn: Accounts Payable
PO Box 2019
Nashua, NH 03061-2019
Atten: Jeanne Walker**

To facilitate the proper and timely payment of applications, the City of Nashua requires that all invoices contain a valid **PURCHASE ORDER NUMBER**.

6.02 *Progress Payments; Retainage*

A. *Progress Payments.* The OWNER will once each month make a progress payment to the CONTRACTOR on the basis of an estimate of the total amount of work done to the time of the estimate and its value as prepared by the CONTRACTOR and approved by the ENGINEER. All such payments will be measured by the schedule of values established in paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.

B. *Retainage.* The OWNER will retain a portion of the progress payment, each month, in accordance with the following procedures:

1. The OWNER will establish an escrow account in the bank of the OWNER'S choosing. The account will be established such that interest on the principal will be paid to the CONTRACTOR. The principal will be the accumulated retainage paid into the account by the OWNER. The principal will be held by the bank, available only to the OWNER, until termination of the contract.
2. Until the work is 50% complete, as determined by the ENGINEER, retainage shall be 10% of the monthly payments claimed. The computed amount of retainage will be deposited in the escrow account established above.
3. After the work is 50% complete, and provided the CONTRACTOR has satisfied the ENGINEER in quality and timeliness of the work, and provided further that there is no specific cause for withholding additional retainage no further amount will be withheld. The escrow account will remain at the same balance throughout the remainder of the project.

6.03 *Final Payment*

A. Upon final completion and acceptance of the Work in accordance with paragraph 14.07 of the General Conditions, OWNER shall hold 2% retainage during the **1 (one) year** warranty period and release it only after the project has been accepted.

ARTICLE 7 - CONTRACTOR'S REPRESENTATIONS

7.01 In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

A. CONTRACTOR has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

B. CONTRACTOR has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. CONTRACTOR has carefully studied all (if any): (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which has been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions.

CONTRACTOR is entitled to rely upon the general accuracy of the "technical data" as provided in paragraph 4.2 of the General Conditions. CONTRACTOR acknowledges that such reports and drawings are not Contract Documents and may not be complete for CONTRACTOR's purposes. CONTRACTOR acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the site.

E. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction, if any, expressly required by the Contract Documents to be employed by CONTRACTOR, and safety precautions and programs incident thereto.

F. CONTRACTOR does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

G. CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Contract Documents.

H. CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

I. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that CONTRACTOR has discovered in the Contract Documents, and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 8 - CONTRACT DOCUMENTS

8.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. This Agreement;
 - 2. General Conditions;
 - 3. Supplementary Conditions;
 - 4. Bid Bond;
 - 5. Bid Form;
 - 6. Performance Bond;
 - 7. Payment Bond;
 - 8. Certificate of Insurance
 - 9. Technical Specifications as listed in Table of Contents
 - 10. Addenda (numbers _____ to _____, inclusive);
 - 11. Exhibits, as listed in the Table of Contents, to this Agreement
 - 12. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Written Amendments
 - b. Change Order(s)
 - 14. New Hampshire Department of Transportation “Standard Specifications for Road and Bridge Construction”, **latest** edition, incorporated by reference.
 - 15. “Manual of Uniform Traffic Control Devices”, **latest** edition, incorporated by reference.
 - 16. City of Nashua, Standard Specifications for Sewers and Drains, Approved and Adopted June 15, 1993, incorporated by reference.
 - 17. Fully Executed City of Nashua Purchase Order
- B. The documents listed in paragraph 8.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 8.
- D. The Contract Documents may only be amended, modified or supplemented as provided in paragraph 3.04 of the General Conditions.

ARTICLE 9 - MISCELLANEOUS

9.01 *Terms*

A. Terms used in this will have the meanings indicated in the General Conditions.

9.02. *Assignment of Contract*

A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

9.03 *Successors and Assigns*

A. OWNER and CONTRACTOR each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

9.04 *Severability*

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

9.05 *Choice of Law and Venue*

A. This Agreement shall be governed by the laws of the State of New Hampshire, and any litigation shall be brought in a court located in the State of New Hampshire.

Address for giving notices to Owner:

Division of Public Works

Address for giving notices to Contractor:

Agent for service of process:

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR and ENGINEER. All portions of the Contract Documents have been signed, initialed or identified by OWNER and CONTRACTOR or identified by ENGINEER on their behalf.

CITY OF NASHUA – OWNER

Donnalee Lozeau, Mayor City of Nashua

Date:_____

CONTRACTOR:

By:_____
(Authorized Representative)

Print Name:_____

Date:_____

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 Defined Terms

A. Wherever used in the Contract Documents and printed with initial or all capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids, which clarify, correct, or change the Bidding Requirements or the Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between OWNER and CONTRACTOR covering the Work.

3. *Application for Payment*--The form acceptable to ENGINEER which is to be used by CONTRACTOR during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

7. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, Bid security form, if any, and the Bid form with any supplements.

8. *Bonds*--Performance and payment bonds and other instruments of security.

9. *Change Order*--A document recommended by ENGINEER which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by OWNER or CONTRACTOR seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the OWNER and CONTRACTOR concerning the Work. The contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*--The Contract Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications, the Drawings and the Purchases Order as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Field Orders, and ENGINEER's written interpretations and clarifications issued on or after the Effective Date Of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this paragraph are Contract Documents. Files in

electronic media format of text, data, graphics, and the like that may be furnished by OWNER to CONTRACTOR are not Contract Documents.

13. *Contract Price*--The moneys payable by OWNER to CONTRACTOR for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Substantial Completion; and (ii) complete the Work so that it is ready for final payment as evidenced by ENGINEER's written recommendation of final payment.

15. *CONTRACTOR*--The individual or entity with whom OWNER has entered into the Agreement.

16. *Cost of the Work*--See paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by ENGINEER which graphically shows the scope, extent, and character of the Work to be performed by CONTRACTOR. Shop Drawings and other CONTRACTOR submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *ENGINEER*--The individual or entity named as such in the Agreement.

20. *ENGINEER's Consultant*--An individual or entity having a contract with ENGINEER to furnish services as ENGINEER's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.

21. *Field Order*--A written order issued by ENGINEER which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

22. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

23. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

24. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

25. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

27. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

28. *Notice of Award*--The written notice by OWNER to the apparent successful bidder stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, OWNER will sign and deliver the Agreement.

29. *Notice to Proceed*--A written notice given by OWNER to CONTRACTOR fixing the date on which the Contract Times will commence to run and on which CONTRACTOR shall start to perform the Work under the Contract Documents.
30. *OWNER*--The individual, entity, public body, or authority with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be performed.
31. *Partial Utilization*--Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.
32. *PCB's*--Polychlorinated biphenyls.
33. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
34. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part as may be indicated elsewhere in the contract Documents.
35. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
36. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
37. *Resident Project Representative*--The authorized representative of ENGINEER who may be assigned to the Site or any part thereof.
38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
39. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.
40. *Site*--Lands or areas indicated in the Contract Documents as being furnished by OWNER upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by OWNER which are designated for the use of CONTRACTOR.
41. *Specifications*--That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.
42. *Subcontractor*--An individual or entity having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the Site.
43. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.
44. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

45. *Supplier*--A manufacturer, fabricator, supplier, distributor, material man, or vendor having a direct contract with CONTRACTOR or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by CONTRACTOR or any Subcontractor.

46. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

47. *Unit Price Work*--Work to be paid for on the basis of unit prices.

48. *Work*--The entire completed construction or the various separately identifiable parts thereof required to be provided in the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

49. *Written Amendment*--A written statement modifying the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

1.02 Terminology

A. *Intent of Certain Terms or Adjectives*

1. Whenever in the Contract Documents the terms "as allows," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of ENGINEER as to the Work, it is intended that such action or determination will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.10 or any other provision of the Contract Documents.

B. *Day*

1. The work "day" shall constitute a calendar day of regular working hours except Saturdays, Sundays and any legal holiday.

C. *Defective*

1. The word "defective," when modifying the work "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it does not conform to the Contract Documents or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER's recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER at Substantial Completion in accordance with paragraph 14.04 or 14.05).

D. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “Provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of CONTRACTOR, “provide” is implied.

E. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 Delivery of Bonds

A. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish.

2.02 Copies of Documents

A. OWNER shall furnish to CONTRACTOR up to 5 copies of the Contract Documents as are reasonably necessary for execution of the Work. Additional copies will be furnished upon request at the cost of reproduction.

2.03 Commencement of Contract Times; Notice to Proceed

A. The Contract Times will commence on the day indicated in the Notice to Proceed

2.04 Starting the Work

A. CONTRACTOR shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 Before Starting Construction

A. *CONTRACTOR's Review of Contract Documents:* Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error, ambiguity, or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless CONTRACTOR knew or reasonably should have known thereof.

B. *Preliminary Schedules:* Within ten days after the effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for its timely review:

1. A preliminary progress schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
2. A preliminary schedule of Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing, and processing such submittal; and
3. A preliminary schedule of values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

C. *Evidence of Insurance*: Before any Work at the Site is started, CONTRACTOR and OWNER shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which CONTRACTOR and OWNER respectively are required to purchase and maintain in accordance with Article 5.

2.06 Preconstruction Conference

A. Within 20 days after the Contract times start to run, but before any Work at the Site is started, a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in paragraph 2.05.B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 Initial Acceptance of Schedules

A. Unless otherwise provided in the Contract Documents, at least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to review for acceptability to ENGINEER as provided below the schedules submitted in accordance with paragraph 2.05.B. CONTRACTOR shall have an additional ten days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to CONTRACTOR until acceptable schedules are submitted to ENGINEER.

1. The progress schedule will be acceptable to ENGINEER if it provides an orderly progression of the Work to completion within any specified Milestones and the Contract Times. Such acceptance will not impose on ENGINEER responsibility for the progress schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve CONTRACTOR from CONTRACTOR's full responsibility therefore.

2. CONTRACTOR's schedule of Shop Drawing and Sample submittals will be acceptable to ENGINEER if it provides a workable arrangement for reviewing and processing the required submittals.

3. CONTRACTOR's schedule of values will be acceptable to ENGINEER as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 Intent

A. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.

B. It is the intent of the Contract documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to OWNER.

C. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in Article 9.

3.02 Reference Standards

A. *Standards, Specifications, Codes, Laws, and Regulations*

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of OWNER, CONTRACTOR, or ENGINEER, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall any such provision or instruction be effective to assign to OWNER, ENGINEER, or any of ENGINEER's Consultants, agents, or employees any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Document.

3.03 Reporting and Resolving Discrepancies

A. Reporting Discrepancies

1. If, during the performance of the Work, CONTRACTOR discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, CONTRACTOR shall report it to ENGINEER in writing at once. CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as required by paragraph 6.16A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in paragraph 3.04; provided, however, that CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity, or discrepancy unless CONTRACTOR knew or reasonably should have known thereof.

2. In case of discrepancy, calculated dimensions will govern over scaled dimensions, Drawings will govern over Standard Specifications, and Construction Specifications will govern over both Drawings and Standard Specifications. The CONTRACTOR shall take no advantage of any apparent error or omission in the Drawings or Construction Specifications, and the ENGINEER will be permitted to make such corrections and interpretations as may be deemed necessary to fulfill the intent of the Contract Documents.

B. Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

- a. The provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or
- b. The provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 Amending and Supplementing Contract Documents

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways: (i) a Written Amendment, or (ii) a Change Order; or B. The requirements of the Contract Documents may be supplemented and minor variations and deviations in the Work may be authorized, by one or more of the following ways: (i) a Field Order; (ii) ENGINEER's approval of a Shop Drawing or Sample; or (iii) ENGINEER's written interpretation or clarification.

3.05 Reuse of Documents

A. CONTRACTOR and any Subcontractor or Supplier or other individual or entity performing or furnishing any of the Work under a direct or indirect contract with OWNER: (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of ENGINEER or ENGINEER's Consultant, including electronic media editions. This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude CONTRACTOR from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

4.01 Availability of Lands

A. OWNER shall furnish the Site. OWNER shall notify CONTRACTOR of any encumbrances or restrictions not of general application but specifically related to use of the Site with which CONTRACTOR must comply in performing the Work. OWNER will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If CONTRACTOR and OWNER are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in OWNER's furnishing the Site, CONTRACTOR may make a Claim therefore as provided in paragraph 10.05.

B. Upon reasonable written request, OWNER shall furnish CONTRACTOR with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and OWNER's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

D. If corporate or private property interferes with the Work, CONTRACTOR shall notify, in writing, the OWNER's of such property, advising them of the nature of the interference and shall arrange to cooperate with them for the protection or disposition of such property. CONTRACTOR shall furnish the ENGINEER with copies of such notifications and with copies of any agreements between the CONTRACTOR and the property OWNER's concerning such protection or disposition.

E. CONTRACTOR shall take all necessary precautions for the protection of corporate or private property, such as walls and foundations of buildings, vaults, underground structures of public utilities, underground drainage facilities, overhead structures of public utilities, trees, shrubbery, crops, and fences contiguous to the Work, of which the Contract does not provide for removal. CONTRACTOR shall protect and carefully preserve all official survey monuments, property marks, section markers, and Geological Survey Monuments, or other similar monuments, until OWNER, or authorized Surveyor or agent has witnessed or otherwise referenced their location or relocation. CONTRACTOR shall notify the ENGINEER of the presence of any such survey or property monuments as soon as they are discovered.

F. CONTRACTOR shall be responsible for the damage or destruction of property of any character resulting from neglect, misconduct, or omission in its manner or method of execution or the non-execution of the work, or caused by defective work or the use of unsatisfactory materials, and such responsibility shall not be released until the work shall have been completed and accepted and the requirements of the Construction Specifications complied with.

G. Whenever public or private property is so damaged or destroyed, the CONTRACTOR shall at its own expense, restore such property to a condition equal to that existing before such damage or injury was done by repairing, rebuilding, or replacing it as may be directed, or the CONTRACTOR shall otherwise make good such damage or destruction in an acceptable manner. If the CONTRACTOR fails to do so, the ENGINEER may, after giving the CONTRACTOR notice in writing, proceed to repair, rebuild, or otherwise restore such property as may be deemed necessary, and the cost thereof shall be deducted from any compensation due, or which may become due, the CONTRACTOR under its Contract.

4.02 Subsurface and Physical Conditions

A. Reports and Drawings:

1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that ENGINEER has used in preparing the Contract Documents; and

2. Those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Contract Documents.

B. Limited Reliance by CONTRACTOR on Technical Data Authorized:

CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER, or any of ENGINEER's Consultants with respect to:

1. The completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, and safety precautions and programs incident thereto; or
2. Other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
3. Any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

C. Potential for Hazardous Materials:

Work may include excavation through, and removal of, soils potentially containing undocumented asbestos-containing or other hazardous materials. Should the CONTRACTOR, while performing work under this Contract, uncover hazardous materials, as defined in federal, state and local regulations, he/she shall immediately notify the Engineer. No further disturbance of the area shall occur until the Engineer has collected and analyzed a representative sample of the suspected material. The area shall be cordoned off and covered with 6-mil polyethylene sheeting and await further directions from the Engineer.

4.03 Differing Subsurface or Physical Conditions

A. Notice: If CONTRACTOR believes that any subsurface or physical conditions at or contiguous to the Site that is uncovered or revealed either:

1. Is of such a nature as to establish that any "technical data" on which CONTRACTOR is entitled to rely as provided in paragraph 4.02 is materially inaccurate; or
2. Is of such a nature as to require a change in the Contract Documents; or
3. Differs materially from that shown or indicated in the Contract Documents; or
4. Is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents; then CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), notify OWNER and ENGINEER in writing about such condition. CONTRACTOR shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. ENGINEER's Review: After receipt of written notice as required by paragraph 4.03.A, ENGINEER will promptly review the pertinent condition, determine the necessity of OWNER's obtaining additional exploration or tests with respect thereto, and advise OWNER in writing (with a copy to CONTRACTOR) of ENGINEER'S findings and conclusions.

C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in CONTRACTOR's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. Such condition must meet any one or more of the categories described in paragraph 4.03.A; and
- b. With respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of paragraphs 9.08 and 11.03.

2. CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Contract Times if:

- a. CONTRACTOR knew of the existence of such conditions at the time CONTRACTOR made a final commitment to OWNER in respect of Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
- b. The existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and Contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for CONTRACTOR prior to CONTRACTOR's making such final commitment; or
- c. CONTRACTOR failed to give the written notice within the time and as required by paragraph 4.03.A.

3. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefore as provided in paragraph 10.05. However, OWNER, ENGINEER, and ENGINEER's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by CONTRACTOR on or in connection with any other project or anticipated project.

4.04 Underground Facilities

A. Shown or Indicated: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to OWNER or ENGINEER by the OWNER's of such Underground Facilities, including OWNER, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

- 1. OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and
- 2. The cost of all of the following will be included in the Contract Price, and CONTRACTOR shall have full responsibility for:
 - a. Reviewing and checking all such information and data,
 - b. Locating all Underground Facilities shown or indicated in the Contract Documents.
 - c. Coordination of the Work with the OWNER's of such Underground Facilities, including OWNER, during construction, and
 - d. The safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. Not Shown or Indicated

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A). identify the OWNER of such Underground Facility and give written notice to that OWNER and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility.

If ENGINEER concludes that a change in the Contract Documents is required, a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that CONTRACTOR did not know of and could not reasonably have been expected to be aware of or to have anticipated. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, OWNER or CONTRACTOR may make a Claim therefore as provided in paragraph 10.05.

CONTRACTOR shall notify the following underground utility locating service at least three full working days prior to beginning work: Dig Safe System, Inc. 1-800-344-7233.

A list of the major public utilities servicing the work area follows. The list indicates the name and telephone number of the responsible authority of the various utilities which should be notified if conflicts or emergencies arise during the progress of the work.

<u>Electricity</u> – Eversource	1-800-662-7764
<u>Natural Gas</u> – Liberty Energy	1-603-222-3705
<u>Water</u> – Pennichuck Water Works	1-603-882-5191
<u>Telephone</u> –Fairpoint Communications	1-603-645-3500
<u>Cable TV</u> – Comcast	1-888-633-4266
<u>Fire Alarm Cable</u> – Nashua Fire Department	1-603-594-3641

2. At points where the CONTRACTOR's operations are adjacent to public and private utilities, CONTRACTOR shall not commence work until CONTRACTOR has made all arrangements necessary for the protection of utilities.
3. CONTRACTOR shall coordinate and cooperate with the OWNER's of any underground or overhead utility lines in their removal and rearrangement operations in order that these operations may progress in a reasonable manner, that duplication of rearrangement work may be reduced to a minimum, and that services rendered by those parties will not be unnecessarily interrupted.

4.05 Reference Points

A. OWNER shall provide engineering surveys to establish reference points for construction which in ENGINEER's judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 Hazardous Environmental Condition at Site

A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the ENGINEER in the preparation of the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER or any of ENGINEER's Consultants with respect to:

1. The completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto; or
2. Other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
3. Any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. CONTRACTOR shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. CONTRACTOR shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by CONTRACTOR, Subcontractors, Suppliers, or anyone else for whom CONTRACTOR is responsible.

D. If CONTRACTOR encounters a Hazardous Environmental Condition or if CONTRACTOR or anyone for whom CONTRACTOR is responsible creates a Hazardous Environmental Condition, CONTRACTOR shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by paragraph 6.16); and (iii) notify OWNER and ENGINEER (and promptly thereafter confirm such notice in writing). OWNER shall promptly consult with ENGINEER concerning the necessity for OWNER to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. CONTRACTOR shall not be required to resume Work in connection with such condition or in any affected area until after OWNER has obtained any required permits related thereto and delivered to CONTRACTOR written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by CONTRACTOR, either party may make a Claim therefore as provided in paragraph 10.05.

F. If after receipt of such written notice CONTRACTOR does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then OWNER may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefore as provided in paragraph 10.05. OWNER may have such deleted portion of the Work performed by OWNER'S own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, other

consultants, and subcontractors of each and any of them from and against all claims, costs, losses, damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.F shall obligate CONTRACTOR to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. The provisions of paragraphs 4.02, 4.03, and 4.04 are not intended to apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 Performance, Payment, and Other Bonds

A. CONTRACTOR shall furnish performance and payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Contract Documents.

B. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

C. If the surety on any Bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.01.B, CONTRACTOR shall within 20 days thereafter substitute another Bond and surety, both of which shall comply with the requirements of paragraphs 5.01.B and 5.02.

5.02 Licenses Sureties and Insurers

A. All Bonds and insurance required by the Contract Documents to be purchased and maintained by CONTRACTOR shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue Bonds or insurance policies for the limits and coverage's so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

B. All Sureties and Insurance Companies shall be authorized to do business in the State of New Hampshire and shall have an A.M. Best rating of "A(FSC-VIII)" or better. In the event that the Insurer fails to maintain an A.M. Best rating "A(FSC-VIII)" or better, the CONTRACTOR shall immediately retain a Surety which does meet the above requirements.

5.03 Certificates of Insurance

A. CONTRACTOR shall deliver to OWNER 10 days prior to Work, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by OWNER or any other additional insured) which CONTRACTOR is required to purchase and maintain.

5.04 CONTRACTOR's Liability Insurance

A. CONTRACTOR shall purchase and maintain such liability and other insurance as is required by OWNER which will provide protection from claims which may arise out of or result from CONTRACTOR's performance of the Work and CONTRACTOR's other obligations under the Contract Documents, whether it is to be performed by CONTRACTOR,

any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.

B. The policies of insurance so required by this paragraph 5.04 to be purchased and maintained shall:

1. Include as additional insured (subject to any customary exclusion in respect of professional liability) OWNER, ENGINEER.

2. The CONTRACTOR must maintain the following lines of coverage and policy limits for the duration of the contract. Any subcontractors used by the CONTRACTOR are subject to the same coverage and limits and is a subcontractor of the CONTRACTOR and not the OWNER. It is the responsibility of the CONTRACTOR to update Certificates of Insurance during the term of the contract. Provide coverage for not less than the following amounts or greater:

General Liability

\$1,000,000 per Occurrence

\$2,000,000 Aggregate

City of Nashua Additional Insured

Motor Vehicle Liability ***coverage must include all owned, non-owned and hired vehicles.**

\$1,000,000 Combined Single Limit

Automobile Liability

City of Nashua Additional Insured

Workers' Compensation Coverage according to Statute of the State of New Hampshire:

\$100,000 / \$500,000 / \$100,000

All bidders and subcontractors at every tier under the bidder will fully comply with NH RSA Chapter 281-A, "Workers' Compensation".

It is the responsibility of the contractor to submit to the City of Nashua certificates of insurance for all subcontractors prior to the start of the project. It is the responsibility of the contractor to provide the City with updated certificates of insurance for the contractor and all subcontractors 10 days prior to the expiration of coverage. The City may, at any time, order the contractor to stop work, suspend the contract or terminate the contract for non-compliance. All subcontractors are subject to the same insurance requirements as the contractor.

3. Include completed operations insurance;

4. Include contractual liability insurance covering CONTRACTOR's indemnity obligations under paragraphs 6.07, 6.11, and 6.20;

5. Contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the CONTRACTOR pursuant to paragraph 5.03 will so provide);

6. Remain in effect until final payment and at all times thereafter when CONTRACTOR may be correcting, removing or replacing defective Work in accordance with paragraph 13.07; and

7. With respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and CONTRACTOR shall furnish OWNER and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to OWNER and any such additional insured of continuation of such insurance at final payment and one year thereafter).

B. CONTRACTOR agrees to maintain all required insurance coverage throughout the entire term of the contract. If CONTRACTOR does not maintain coverage throughout the entire term of the contract, CONTRACTOR agrees that OWNER may, at any time the coverage is not maintained by CONTRACTOR, order the CONTRACTOR to stop work, suspend the contract, or terminate the contract. CONTRACTOR further agrees, if applicable, as a precondition to the performance of any work under this contract and as a precondition to any obligation of the OWNER to make any payment under this contract to provide the OWNER with a certificate of a qualified insurer.

5.05 Property Insurance

A. CONTRACTOR must purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost of the Work. This insurance shall:

1. include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;
2. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
3. cover materials and equipment stored at the Site or at another location that was agreed to in writing by OWNER prior to being incorporated in the Work, provided that the materials and equipment have been included in an application for payment recommended by ENGINEER; and
4. allow for partial utilization of the Work by OWNER;
5. include testing and startup; and
6. be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR and ENGINEER with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. CONTRACTOR shall be responsible for any deductible or self-insured retention. The risk of loss within the identified deductible amount will be borne by CONTRACTOR, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense. OWNER shall not be responsible for purchasing and maintaining any property insurance specified in this paragraph 5.06 to protect the interests of CONTRACTOR, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions.

C. All the policies of insurance (and the certificates or other evidence of the policy) required to be purchased and maintained in accordance with paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days after written notice has been given to OWNER and CONTRACTOR and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with paragraph 5.07.

5.06 Waiver of Rights

A. CONTRACTOR intends that all policies purchased in accordance with paragraph 5.06 will protect OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered by the policy. All CONTRACTOR policies must contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insured or additional insured there under. CONTRACTOR waive all rights against OWNER

each other and their respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) under such policies for losses and damages so caused.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 Supervision and Superintendence

A. CONTRACTOR shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of OWNER or ENGINEER in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, CONTRACTOR shall assign a competent resident superintendent thereto who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the Site and shall have authority to act on behalf of CONTRACTOR. All communications given to or received from the superintendent shall be binding on CONTRACTOR.

6.02 Labor; Working Hours

A. CONTRACTOR shall provide competent, suitably qualified personnel to survey, lay out, and construct the Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday, or any legal holiday without OWNER's written consent (which will not be unreasonably withheld) given after prior written notice to ENGINEER.

C. The following list of streets may not be opened or worked in between the hours of 7:00 AM and 9:00 AM and 3:00 PM and 6:00 PM, Monday through Friday of each week:

**Broad Street
East Hollis Street
Concord Street
Amherst Street
D. W. Highway
Kinsley Street
East Dunstable Road
Main Street**

6.03 Services, Materials, and Equipment

A. Unless otherwise specified in the General Requirements, CONTRACTOR shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of OWNER. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 Progress Schedule

A. CONTRACTOR shall adhere to the progress schedule established in accordance with paragraph 2.07 as it may be adjusted from time to time as provided below.

1. CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.07) proposed adjustments in the progress schedule that will not result in changing the Contract Times (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of Article 12. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

6.05 Substitutes and “Or-Equals”

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or “or-equal” item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to ENGINEER for review under the circumstances described below.

1. “Or-Equal” Items:

If in ENGINEER’S sole discretion an item of material or equipment proposed by CONTRACTOR is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by ENGINEER as an “or-equal” item, in which case review and approval of the proposed item may, in ENGINEER’s sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

- a. In the exercise of reasonable judgment ENGINEER determines that: (i) it is at least equal in quality, durability, appearance, strength, and design characteristics; (ii) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole, and;
- b. CONTRACTOR certifies that: (i) there is no increase in cost to the OWNER; and (ii) it will conform substantially, even with deviations, to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

- a. If in ENGINEER’s sole discretion an item of material or equipment proposed by CONTRACTOR does not qualify as an “or-equal” item under paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. CONTRACTOR shall submit sufficient information as provided below to allow ENGINEER to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable

substitute therefore. Requests for review of proposed substitute items of material or equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR.

c. The procedure for review by ENGINEER will be as set forth in paragraph 6.05.A.2.d, as supplemented in the General Requirements and as ENGINEER may decide is appropriate under the circumstances.

d. CONTRACTOR shall first make written application to ENGINEER for review of a proposed substitute item of material or equipment that CONTRACTOR seeks to furnish or use. The application shall certify that the proposed substitute item will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified, and be suited to the same use as that specified. The application will state the extent, if any, to which the use of the proposed substitute item will prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute item and whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute item from that specified will be identified in the application, and available engineering, sales, maintenance, repair, and replacement services will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change, all of which will be considered by ENGINEER in evaluating the proposed substitute item. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute item.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and expressly required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by ENGINEER. CONTRACTOR shall submit sufficient information to allow ENGINEER, in ENGINEER's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in subparagraph 6.05.A.2.

C. *Engineer's Evaluation:* ENGINEER will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to paragraphs 6.05.A and 6.05.B. ENGINEER will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized until ENGINEER's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop drawing for an "or equal". ENGINEER will advise CONTRACTOR in writing of any negative determination.

D. *Special Guarantee:* OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.

E. *ENGINEER's Cost Reimbursement:* ENGINEER will record time required by ENGINEER and ENGINEER's Consultants in evaluating substitute proposed or submitted by CONTRACTOR pursuant to paragraphs 6.05.A.2 and 6.05.B and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not ENGINEER approves a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluating each such proposed substitute.

F. *CONTRACTOR's Expense:* CONTRACTOR shall provide all data in support of any proposed substitute or "or-equal" at CONTRACTOR's expense.

6.06 Concerning Subcontractors, Suppliers, and Others

A. CONTRACTOR shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to OWNER as indicated in paragraph 6.06.B), whether initially or as a replacement, against whom OWNER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to OWNER in advance for acceptance by OWNER by a specified date prior to the Effective Date of the Agreement, and if CONTRACTOR has submitted a list thereof in accordance with the Supplementary Conditions, OWNER's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. CONTRACTOR shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by OWNER of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of OWNER or ENGINEER to reject defective work.

C. CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other individual or entity, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. CONTRACTOR shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR.

E. CONTRACTOR shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with ENGINEER through CONTRACTOR.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for CONTRACTOR by a Subcontractor or Supplier will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in paragraph 5.06, the agreement between the CONTRACTOR and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against OWNER, CONTRACTOR, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, CONTRACTOR will obtain the same.

6.07 Patent Fees and Royalties

A. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER or ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees or agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of

or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 Permits

A. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility Owner's for capital costs related thereto, such as plant investment fees.

6.09 Laws and Regulations

A. CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations.

B. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, CONTRACTOR shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work; however, it shall not be CONTRACTOR's primary responsibility to make certain the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve CONTRACTOR of CONTRACTOR's obligations under paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work may be the subject of an adjustment in Contract Price or Contract Times. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefore as provided in paragraph 10.05.

D. CONTRACTOR shall comply with all local laws, ordinances, and statutes, all provisions of the Revised Statutes Annotated, all provisions of the federal Davis-Bacon Act for projects with federal funding, and all regulations promulgated under either statute. Copies of the "City of Nashua Prevailing Wage Rates for Public Works", as determined by U.S. Department of Labor and "General Wage Determinations," as determined by the U.S. Department of Labor, are available for inspection at the City of Nashua Division of Public Works, 9 Riverside Street, Nashua, New Hampshire. If the provisions of the Davis-Bacon Act apply, all employees of the CONTRACTOR must be paid not less than the wage which is the greater of the Federal wage determinations. The hourly and daily rate of wages to be paid each class of mechanics and workers must be posted on the project site in a place generally visible to the employees.

E. If the Davis-Bacon Act applies, CONTRACTOR shall furnish to the OWNER within seven days after payment date of the weekly payroll period, a statement of wages paid for each of the CONTRACTOR's employees or a payroll report. If the Davis-Bacon Act applies, CONTRACTOR shall furnish to the OWNER within seven days after payment date of the weekly payroll period, a statement of wages paid for each of any subcontractor's employees or a payroll report for each subcontractor. The statement or report must include the CONTRACTOR's certification of compliance with the requirements of the supplementary condition. CONTRACTOR agrees that failure to comply with the portion of this supplementary condition requiring CONTRACTOR to furnish a certified statement of wages or payroll report will, in addition to any other retention allowed under this contract or under state or federal law, allow the OWNER to unilaterally, without notice to CONTRACTOR, retain an amount of up to 10% from each progress payment until the OWNER determines CONTRACTOR has complied with the provisions of this supplementary condition.

F. If the Davis-Bacon Act applies to work to be performed under this contract, CONTRACTOR shall furnish to the OWNER within seven days after payment date of the weekly payroll period, a statement of wages paid for each of CONTRACTOR's employees and for each of any subcontractor's employees or a payroll report from CONTRACTOR

and from each subcontractor. Each statement or report must include the certification by CONTRACTOR of compliance with the provisions of the Davis-Bacon Act.

G. Workers' Compensation Coverage.

1. CONTRACTOR agrees as a precondition to the performance of any work under this contract and as a precondition to any obligation of the OWNER to make any payment under this contract to provide the OWNER with a certificate of a qualified insurer. CONTRACTOR also agrees, if applicable and before commencing any work under the contract, to complete and to provide the following written request to its insurer:

(Company Name) has entered into a contract with the City of Nashua to perform work from (starting date) to (ending date) and requests that the Insurer provide to the City of Nashua 1) a certificate of coverage and 2) notice of any lapse in coverage or nonpayment of coverage that the CONTRACTOR is required to maintain. The certificate and notice should be mailed to:

Risk Management
City of Nashua
229 Main Street
Nashua, NH 03060

2. CONTRACTOR agrees to maintain required workers' compensation coverage throughout the entire term of the contract. If CONTRACTOR does not maintain coverage throughout the entire term of the contract, CONTRACTOR agrees that OWNER may, at any time the coverage is not maintained by CONTRACTOR, order the CONTRACTOR to stop work, suspend the contract, or terminate the contract. For each six-month period this contract is in effect, CONTRACTOR agrees, prior to the expiration of the six-month period, to provide another written request to its insurer for the provision of a certificate and notice of lapse in or nonpayment of coverage. If CONTRACTOR does not make the request or does not provide the certificate before the expiration of the six-month period, CONTRACTOR agrees that OWNER may order the CONTRACTOR to stop work, suspend the contract, or terminate the contract.

H. To be deemed a responsive bid, the list of subcontractor form must be submitted even if no subcontractors are required to be listed. Submittal is as follows:

1. Each bid submitted to any officer, department, board or commission for the construction of any public work or improvement must include:

a. The name of each subcontractor who will provide labor or a portion of the work or improvement to the CONTRACTOR for which he will be paid an amount exceeding 5 percent of the prime CONTRACTOR's total bid. Within 2 hours after the completion of the opening of the bids, the general contractors who submitted the three lowest bids must submit a list of the name of each subcontractor who will provide labor or a portion of the work or improvement to the CONTRACTOR for which he will be paid an amount exceeding 1 percent of the prime CONTRACTOR's total bid or \$50,000, whichever is greater, and the number of the license issued to the subcontractor. If a general CONTRACTOR fails to submit such a list within the required time, his bid shall be deemed not responsive.

b. A description of the portion of the work or improvement which each subcontractor named in the bid will complete.

2. The CONTRACTOR shall list in his bid the name of a subcontractor for each portion of the project that will be completed by a subcontractor.

3. A CONTRACTOR whose bid is accepted shall not substitute any person for a subcontractor who is named in the bid, unless:

a. The awarding authority objects to the subcontractor, requests in writing a change in the subcontractor and pays any increase in costs resulting from the change; or

b. The substitution is approved by the awarding authority and:

- (i) The subcontractor, after having a reasonable opportunity, fails or refuses to execute a written contract with the CONTRACTOR which was offered to the subcontractor with the same terms that all other subcontractors on the project were offered;
- (ii) The named subcontractor files for bankruptcy or becomes insolvent; or
- (iii) The named subcontractor fails or refuses to perform his subcontract within a reasonable time or is unable to furnish a performance bond and payment bond.

I. If blasting or use of explosives is necessary for prosecution of Work, the CONTRACTOR shall provide the ENGINEER with a blasting plan in compliance with OSHA, State, and local regulations, laws, ordinances, and requirements. CONTRACTOR shall exercise the utmost care not to endanger life or property. CONTRACTOR shall be responsible for all damage resulting from the use of explosives. CONTRACTOR shall notify each property OWNER and utility company having structures or facilities in proximity to the site of the work of its intentions to use explosives. Such notice shall be given sufficiently in advance to enable the utility companies to take such steps as they may deem necessary to protect their property from injury.

6.10 Taxes

A. CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work

6.11 Use of Site and Other Areas

A. Limitation on Use of Site and Other Areas

1. CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the OWNER or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such OWNER or occupant because of the performance of the Work, CONTRACTOR shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

B. Removal of Debris During performance of the Work:

During the progress of the Work CONTRACTOR shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. Cleaning:

Prior to Substantial Completion of the Work CONTRACTOR shall clean the Site and make it ready for utilization by OWNER. At the completion of the Work CONTRACTOR shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. Loading Structures:

CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

- E. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultant, and the officers, directors, partners, employees, agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such OWNER or occupant against OWNER, ENGINEER, or any other party indemnified hereunder to the extent caused by or based upon CONTRACTOR's performance of the Work.

6.12 Record Documents

A. CONTRACTOR shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to ENGINEER for OWNER.

B CONTRACTOR shall mark up one set of paper prints to show the As-built conditions. They shall include all the information shown on the Contract Drawings and a record of all deviations, modifications, or changes from those Drawings, however minor, which were incorporated in the Work, all additional work not appearing on the Contract Drawings and all changes which are made after final inspection of the Contract Work. These As-built marked prints shall be kept current and available on the job site at all times. All changes from the Contract Drawings which are made in the Work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes. No construction work shall be concealed until it has been inspected, approved, and recorded. The As-built marked prints will be jointly inspected for accuracy and completeness by the ENGINEER'S representative and a responsible representative of the CONTRACTOR prior to submission of the monthly pay estimate. Failure to keep the As-built marked prints on a current basis shall be sufficient justification to suspend pay estimates. The drawings shall show the following information, but not be limited to:

1. The location of any utility lines or other installations of any kind or description known to exist within the construction area. The location includes dimensions of permanent features.
2. The location and identification of all surface installations within 100 feet of the construction work.
3. The location and dimensions of any changes within the building or structure.
4. Correct grade or alignment of roads, structures, or utilities if any changes were made from Contract Drawings.
5. Correct elevations if changes were made in site grading.
6. Changes in details or design or additional information obtained from working drawings specified to be prepared or furnished by the CONTRACTOR including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions or equipment foundations, etc.
7. The topography and grades of all drainage installed or affected as a part of the Work.
8. All changes or modifications which result from the final inspection.

The As-built marked prints shall be delivered to the ENGINEER at the time of final inspection for ENGINEER's review and approval. All approval and acceptance of As-built drawings shall be accomplished before final payment is made to the CONTRACTOR.

6.13 Safety and Protection

A. CONTRACTOR shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. All persons on the Site or who may be affected by the Work;
2. All the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
3. Other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. CONTRACTOR shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify Owner's of adjacent property and of Underground Facilities and other utility Owner's when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property. All damage, injury, or loss to any property referred to in paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER or ENGINEER or ENGINEER'S Consultant, or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them). CONTRACTOR's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

C. Occupational Safety and Health Standards: CONTRACTOR's methods of construction and safety requirements, including but not limited to trench excavation and shoring where applicable, shall conform to the requirements of the Occupational Safety and Health Standards for the Construction Industry. The document entitled "Occupational Safety and Health Standards for the Construction Industry" (29 CFR PART 1926) with Amendments as of February 1, 1998, including 29 CFR part 1910 General Industry Safety and Health Standards Applicable to Construction, is not attached to the Contract Documents. Said requirements as identified and established above are incorporated herein by reference.

D. Power Lines: No equipment of any kind shall be used or permitted within such proximity to the conductors of the Public Services of New Hampshire power lines as to be in violation of the safe working clearance prescribed by the National Electrical Safety Code.

E. Protection of Utilities: The CONTRACTOR shall verify all utility locations prior to the start of construction. This shall include, but not necessarily limited to: irrigation and drainage ditches, culverts, water lines, sewer lines, telephone cables, cable television, gas lines and electric lines. Prior to the start of construction the CONTRACTOR shall call Dig Safe System, Inc. 1-800-344-7233 (two full working days notice required). The failure of any utility to subscribe to DIGS shall not relieve the CONTRACTOR from the responsibility of protection of that utility on the site. Any physical structure (i.e. curbs, sidewalks, paving, buildings, landscape improvements, utilities, etc., damaged by the CONTRACTOR shall be repaired or replaced in a condition equal to or better than the condition prior to the damage. Such repair or replacement shall be accomplished at the CONTRACTOR's expense without additional compensation from the OWNER.

F. CONTRACTOR shall ensure that its activities and activities of its employees, agents and subcontractors, and their employees and agents (including all sub-subcontractors), are in strict compliance with all Environmental Protection Agency, New Hampshire Department of Environmental Services, and Department of Transportation regulations and all other applicable federal, state and local statutes, ordinances, regulations and rules, including without limitation, the Federal Occupational Safety and Health Act of 1970 (OSHA) as amended and the standards and regulations issued thereunder, and all other statutes, ordinances, regulations, rules, standards and requirements of common law in relation to industrial hygiene and safety, and the protection of health and the environment.

6.14 Safety Representative

A. CONTRACTOR shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs. Work Site is subject to safety inspection by the City Safety Representative at any and all times.

6.15 Hazard Communication Programs

A. CONTRACTOR shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 Emergencies

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, CONTRACTOR is obligated to act to prevent threatened damage, injury, or loss. CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If ENGINEER determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, Change Order will be issued.

6.17 Shop drawings and Samples

A. CONTRACTOR shall submit Shop Drawings to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. All submittals will be identified as ENGINEER may require and in the number of copies specified in the General Requirements. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show ENGINEER the services, materials, and equipment CONTRACTOR proposes to provide and to enable ENGINEER to review the information for the limited purposes required by paragraph 6.17.E.

B. CONTRACTOR shall also submit Samples to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers, and the use for which intended and otherwise as ENGINEER may require to enable ENGINEER to review the submittal for the limited purposes required by paragraph 6.17.E. The numbers of each Sample to be submitted will be as specified in the Specifications.

C. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER as required by paragraph 2.07, any related Work performed prior to ENGINEER's review and approval of the pertinent submittal will be at the sole expense and responsibility of CONTRACTOR.

D. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

- a. All field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

- b. All materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;
- c. All information relative to means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto; and
- d. CONTRACTOR shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

3. At the time of each submittal, CONTRACTOR shall give ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to ENGINEER for review and approval of each such variation.

E. ENGINEER's Review

1. ENGINEER will timely review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER. ENGINEER's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. ENGINEER's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for in the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. ENGINEER's review and approval of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of each submittal as required by paragraph 6.17.D.3 and ENGINEER has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.17.D.1.

F. Resubmittal Procedures

1. CONTRACTOR shall make corrections required by ENGINEER and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

6.18 Continuing the Work

A. CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.04 or as OWNER and CONTRACTOR may otherwise agree in writing.

6.19 CONTRACTOR's General Warranty and Guarantee

A. CONTRACTOR warrants and guarantees to OWNER, ENGINEER, and ENGINEER's Consultants that all Work will be in accordance with the Contract Documents and will not be defective. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by:

1. Abuse, modification, or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors, Suppliers, or any other individual or entity for whom CONTRACTOR is responsible; or
2. Normal wear and tear under normal usage.

B. CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents:

1. Observations by ENGINEER;
2. Recommendation by ENGINEER or payment by OWNER OF ANY PROGRESS OR FINAL PAYMENT;
3. The issuance of a certificate of Substantial Completion by ENGINEER or any payment related thereof by OWNER;
4. Use or occupancy of the Work or any part thereof by OWNER;
5. Any acceptance by OWNER or any failure to do so;
6. Any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by ENGINEER;
7. Any inspection, test, or approval by others; or
8. Any correction of defective Work by OWNER.

6.20 Indemnification

A. Regardless of the coverage provided by any insurance, Contractor agrees to indemnify and shall defend and hold harmless the City, its agents, officials, employees and authorized representatives and their employees from and against any and all suits, causes of action, legal or administrative proceedings, arbitrations, claims, demands, damages, liabilities, interest, attorneys' fees, costs and expenses of any kind or nature in any manner caused, occasioned, or contributed to in whole or in part by reason of any negligent act, omission, or fault or willful misconduct, whether active or passive, of Contractor or of anyone acting under its direction or control or on its behalf in connection with or incidental to the performance of this contract. Contractor's indemnity, defense and hold harmless obligations, or portions thereof, shall not apply to liability caused by the sole negligence or willful misconduct of the party indemnified or held harmless.

B. In any and all claims against OWNER or ENGINEER, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for CONTRACTOR or any such Subcontractor, Supplier, or other individual or entity.

C. The indemnification obligations of CONTRACTOR under paragraph 6.20.A shall not extend to the liability of ENGINEER and ENGINEER's Consultants or to the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them arising out of:

The preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications.

ARTICLE 7 - OTHER WORK

7.01 Related Work at Site

A. OWNER may perform other work related to the Project at the Site by OWNER's employees, or let other direct contracts therefore, or have other work performed by utility Owner's. If such other work is not noted in the Contract Documents, then:

1. Written notice thereof will be given to CONTRACTOR prior to starting any such other work; and
2. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefore as provided in paragraph 10.05.

B. CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility OWNER (and OWNER, if OWNER is performing the other work with OWNER's employees) proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, CONTRACTOR shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility OWNERS and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility OWNERS and other contractors.

C. If the proper execution or results of any part of CONTRACTOR's Work depends upon work performed by others under this Article 7, CONTRACTOR shall inspect such other work and promptly report to ENGINEER in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of CONTRACTOR's Work. CONTRACTOR's failure to so report will constitute an acceptance of such other work as fit and proper for integration with CONTRACTOR's Work except for latent defects and deficiencies in such other work.

7.02 Coordination

A. If OWNER intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. The individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
2. The specific matters to be covered by such authority and responsibility will be itemized; and
3. The extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, OWNER shall have sole authority and responsibility for such coordination.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 Communications to Contractor

A. Except as otherwise provided in these General Conditions, OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.02 Replacement of ENGINEER

A. In case of termination of the employment of ENGINEER, OWNER shall appoint and whose status under the Contract Documents shall be that of the former ENGINEER.

8.03 Furnish Data

A. OWNER shall promptly furnish the data required of OWNER under the Contract Documents.

8.04 Pay Promptly When Due

A. OWNER shall make payments to CONTRACTOR promptly when they are due as provided in paragraphs 14.02.C and 14.07.C.

8.05 Lands and Easements; Reports and Tests

A. OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.01 and 4.05. Paragraph 4.02 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by ENGINEER in preparing the Contract Documents.

8.06 Insurance

See Article 5.

8.07 Change Orders

A. OWNER is obligated to execute Change Orders as indicated in paragraph 10.03.

8.08 Inspections, Tests, and Approvals

A. OWNER's responsibility in respect to certain inspections tests, and approvals is set forth in paragraph 13.03.B.

8.09 Limitations on OWNER's Responsibilities

A. The OWNER shall not supervise, direct, or have control or authority over, nor be responsible for, CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, of the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. OWNER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

8.10 Undisclosed Hazardous Environmental Condition

A. OWNER's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in paragraph 4.06

8.11 Evidence of Financial Arrangements

A. If and to the extent OWNER has agreed to furnish CONTRACTOR reasonable evidence that financial arrangements have been made to satisfy OWNER's obligations under the Contract Documents, OWNER's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 OWNER's Representative

A. ENGINEER will be OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER's representative during construction are set forth in the Contract Documents and will not be changed without written consent of OWNER and ENGINEER.

9.02 Visits to Site

A. ENGINEER will make visits to the Site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of CONTRACTOR's executed Work. Based on information obtained during such visits and observations, ENGINEER, for the benefit of OWNER, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. ENGINEER's efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defective Work.

B. ENGINEER's visits and observations are subject to all the limitations on ENGINEER's authority and responsibility set forth in paragraph 9.10, and particularly, but without limitation, during or as a result of ENGINEER's visits or observations of CONTRACTOR's Work ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work.

9.03 Project Representative

A. If OWNER and ENGINEER agree, ENGINEER will furnish a Resident Project Representative to assist ENGINEER in providing more extensive observation of the Work. The responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.10 and in the Supplementary Conditions. If OWNER designates another representative or agent to represent OWNER at the Site who is not ENGINEER's Consultant, agent or employee, the responsibilities and authority and limitations thereof of such other individual or entity will be as provided in the supplementary Conditions.

9.04 Clarifications and Interpretations

A. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as ENGINEER may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a written clarification or interpretation, a Claim may be made therefore as provided in paragraph 10.05.

9.05 Authorized Variations in Work

A. ENGINEER may authorize minor variations in the Work from the requirements of the Contract documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a

Field Order and will be binding on OWNER and also on CONTRACTOR, who shall perform the Work involved promptly. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of a Field Order, a Claim may be made therefore as provided in paragraph 10.05.

9.06 Rejecting Defective Work

A. ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be defective, or that ENGINEER believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. ENGINEER will also have authority to require special inspection or testing of the Work as provided in paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.07 Shop Drawings, Change Orders and Payments

A. In connection with ENGINEER's authority as to Shop Drawings and Samples, see paragraph 6.17.

B. In connection with ENGINEER's authority as to change orders, see Articles 10, 11, and 12.

C. In connection with ENGINEER's authority as to Applications for Payment, see Article 14.

9.08 Determinations for Unit Price Work

A. ENGINEER will have authority to determine the actual quantities and classifications of items of Unit Price Work performed by CONTRACTOR, and the written decisions of ENGINEER on such matters will be final, binding on OWNER and CONTRACTOR and not subject to appeal (except as modified by ENGINEER to reflect changed factual conditions).

9.09 Decisions on Requirements of Contract Documents and Acceptability of Work

A. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work there under. Claims, disputes and other matters relating to the acceptability of the Work, the quantities and classifications of Unit Price Work, the interpretation of the requirements of the Contract documents pertaining to the performance of the Work, and Claims seeking changes in the Contract Price or Contract Times will be referred initially to ENGINEER in writing in accordance with the provisions of paragraph 10.05, with a request for a formal decision.

B. When functioning as interpreter and judge under this paragraph 9.09, ENGINEER will not be liable in connection with any interpretation or decision rendered in such capacity. The rendering of a decision by ENGINEER pursuant to this paragraph 9.09 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.07) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

9.10 Limitations on ENGINEER's Authority and Responsibilities

A. Neither ENGINEER's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by ENGINEER shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the

Work. ENGINEER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

C. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. ENGINEER's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates or inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this paragraph 9.10 shall also apply to ENGINEER's Consultants, Resident Project Representative, and assistants.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 Authorized Changes in the Work

A. Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Written Amendment or a Change Order. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If OWNER and CONTRACTOR are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Change Order, a Claim may be made therefore as provided in paragraph 10.05.

10.02 Unauthorized Changes in the Work

A. CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in paragraph 3.04, except in the case of an emergency as provided in paragraph 6.16 or in the case of uncovering Work as provided in paragraph 13.04.B.

10.03 Execution of Change Orders

A. OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by ENGINEER (or Written Amendments) covering:

1. Changes in the Work which are: (i) ordered by OWNER pursuant to paragraph 10.01.A, (ii) required because of acceptance of defective Work under paragraph 13.08.A or OWNER's correction of defective Work under paragraph 13.09, or (iii) agreed to by the parties;
2. Changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Change Order ; and
3. Changes in the Contract Price and Contract Times which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.18.A.

10.04 Notification to Surety

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility. The amount of each applicable Bond will be adjusted to reflect the effect of any such change.

10.05 Disputes – Not Insurance Related

A. Notice: Written notice stating the general nature of each Claim, dispute, or other matter shall be delivered by the claimant to ENGINEER and the other party to the Contract promptly (but in no event later than 10 days) after the start of the event giving rise thereto. Notice of the amount or extent of the dispute, or other matter with supporting data shall be delivered to the ENGINEER, Risk Management Department and the other party to the Contract within 60 days after the start of such event. A dispute for an adjustment in Contract Price shall be prepared in accordance with the provisions in paragraph 12.01.B. A dispute for an adjustment in Contract Time shall be prepared in accordance with the provisions of paragraph 12.02.B. Each dispute shall be accompanied by claimant's written statement that the adjustment disputed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to ENGINEER and the claimant within 30 days after receipt of the claimant's last submittal (unless ENGINEER allows additional time).

B. ENGINEER'S Decision: ENGINEER will render a formal decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any. ENGINEER's written decision on such dispute, or other matter will be final and binding upon CONTRACTOR unless:

1. An appeal from ENGINEER'S decision is taken within the time limits and in accordance with the dispute resolution procedures set forth in Article 16; or

2. If no such dispute resolution procedures have been set forth in Article 16, a written notice of intention to appeal from ENGINEER's written decision is delivered by CONTRACTOR to the other and to ENGINEER within 30 days after the date of such decision, and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction within 60 days after the date of such decision or within 60 days after Substantial Completion, whichever is later (unless otherwise agreed in writing by OWNER and CONTRACTOR), to exercise such rights or remedies as the appealing party may have the respect to such Claim, dispute, or other matter in accordance with applicable Laws and Regulations.

C. If ENGINEER does not render a formal decision in writing within the time stated in paragraph 10.05.B, a decision denying the dispute in its entirety shall be deemed to have been issued 31 days after receipt of the last submittal of the claimant or the submittal of the opposing party, if any.

D. No dispute for an adjustment in Contract Price or Contract Times (or Milestones) will be valid if not submitted in accordance with this paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

11.01 Cost of the Work

A. Costs Included: The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of the Cost of the Work, the costs to be reimbursed to CONTRACTOR will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon by OWNER and CONTRACTOR. Such employees shall include without limitation superintendents, foremen, and other personnel employed full time at the Site. Payroll costs of

employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by OWNER.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

3. Payments made by CONTRACTOR to Subcontractors for Work performed by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from subcontractors acceptable to OWNER and CONTRACTOR and shall deliver such bids to OWNER, who will then determine, with the advice of ENGINEER, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as CONTRACTOR's Cost of the Work and fee as provided in this paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of CONTRACTOR.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advice of ENGINEER, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

6. Rental rates shall be determined as follows:

a. The base rates shall be those established in publications and revisions thereto entitled "Rental Rate Blue Book for Construction Equipment" or the "Rental Rate Blue Book for Older Construction Equipment" as published by K-III, 1735 Technology Drive, Suite 401, San Jose, CA 95110-1313, Phone (408) 467-6700.

b. Attachments (e.g. tractor with ripper and dozer or tractor with loader and backhoe) will be included in the hourly rental rate only when deemed essential to the work as determined the Engineer. When multiple attachments are approved for use and are being used interchangeably, the attachment having the higher rental rate shall be the only one included for payment.

c. No direct payment will be made for necessary accessories (including replenishing blades, augers, teeth, hoses, bits, etc.) if not listed in the Rental Rate Blue Book.

d. No compensation will be allowed for shop tools having a daily rental rate of less than \$10 as set forth in Section 18 of the Rental Rate Blue Book.

- i. If ordered to use equipment not listed in the aforementioned publications, the Engineer will establish a rental rate for such equipment. CONTRACTOR shall furnish cost data that might assist in the establishment of such rental rate.
 - ii. Payment will be made for the actual time that such equipment is in operation on the work.
 - iii. Authorized standby time for idle equipment shall be paid at 50% of the specified rate, less the estimated operating cost per hour. No markup will be added for overhead and profit.
 - iv. Rental rate paid as above provided shall include the cost of fuel, oil, lubrication, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance and all incidentals. CONTRACTOR shall provide the Engineer with a complete Force Account Equipment Listing for each piece of equipment utilized.
- e. Sales, consumer, use, and other similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.
- f. Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- g. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance of the Work, provided such losses and damages have resulted from causes other than negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's fee.
- h. The cost of utilities, fuel, and sanitary facilities at the Site.
- i. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expressage, and similar petty cash items in connection with the Work.
- j. When the Cost of the Work is used to determine the value of a Change Order or of a Claim, the cost of premiums for additional Bonds and insurance required because of the changes in the Work or caused by the event giving rise to the Claim
- k. When all the Work is performed on the basis of cost-plus, the costs of premiums for all Bonds and insurance CONTRACTOR is required by the Contract Documents to purchase and maintain.

B. Costs Excluded: The term Cost of the Work shall not include any of the following items:

- 1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnerships and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by CONTRACTOR, whether at the Site or in CONTRACTOR's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.01.A.1 or specifically covered by paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the CONTRACTOR's fee.
- 2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the Site.
- 3. Any part of CONTRACTOR's capital expense, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

4. Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraphs 11.01.A and 11.01.B.

C. CONTRACTOR's Fee: When all the Work is performed on the basis of cost-plus, CONTRACTOR's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, CONTRACTOR's fee shall be determined as set forth in paragraph 12.01.C.

D. Documentation: Whenever the cost of the Work for any purpose is to be determined pursuant to paragraphs 11.01.A. and 11.01.B, CONTRACTOR will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to ENGINEER as itemized cost breakdown together with supporting data.

11.02 Cash Allowances

A. It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums as may be acceptable to OWNER and ENGINEER. CONTRACTOR agrees that:

1. The allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. CONTRACTOR's costs for unloading and handling on the Site, labor, installation costs, overhead, profit, and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

B. Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 Unit Price Work

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of the Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER subjects to the provisions of paragraph 9.08

B. Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 Change of Contract Price

A. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of paragraph 11.03); or
2. Where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 12.01.C.2); or
3. Where the Work involved is not covered by unit prices contained in the Contract Documents an agreement to a lump sum is not reached under paragraph 12.01.B.2, on the basis of the cost of the Work (determined as provided in paragraph 11.01) plus a CONTRACTOR's fee for overhead and profit (determined as provided in paragraph 12.01.C).

C. CONTRACTOR's Fee: The CONTRACTOR's fee for overhead and profit shall be determined as follows:

1. A mutually acceptable fixed fee; or
2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. For costs incurred under paragraphs 11.01.A.1 and 11.01.A.2, the CONTRACTOR's fee shall be 15 percent;
 - b. For costs incurred under paragraph 11.01.A.3, the CONTRACTOR's fee shall be five percent;
 - c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of paragraph 12.01.C.2.a. is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and CONTRACTOR will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
 - d. No fee shall be payable on the basis of costs itemized under paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
 - e. The amount of credit to be allowed by CONTRACTOR to OWNER for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in CONTRACTOR's fee by an amount equal to five percent of such net decrease; and
 - f. When both addition and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with paragraphs 12.01.C.2.a through 12.01.C.2.e inclusive.

12.02 Change of Contract Times

A. The Contract Times (or Milestones) may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Times (or Milestones) shall be based on written notice submitted by the party making the claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. Any adjustment of the contract Times (or Milestones) covered by a Change Order or of any Claim for an adjustment in the Contract Times (or Milestones) will be determined in accordance with the provisions of this Article 12.

12.03 Delays beyond CONTRACTOR's Control

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount

equal to the time lost due to such delay if a Claim is made therefore as provided in paragraph 12.02.A. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

12.04 Delays within CONTRACTOR's Control

A. The Contract Times (or Milestones) will not be extended due to delays within the control of CONTRACTOR. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

12.05 Delays beyond OWNER's and CONTRACTOR's Control

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay.

12.06 Delay Damages

A. In no event shall OWNER or ENGINEER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from:

1. Delays caused by or within the control of CONTRACTOR; or
2. Delays beyond the control of both OWNER and CONTRACTOR including but not limited to fires, flood, epidemics, abnormal weather conditions, acts of God, or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

B. Nothing in this paragraph 12.06 bars a change in Contract Price pursuant to this Article 12 to compensate CONTRACTOR due to delay, interference, or disruption directly attributable to actions or inactions of OWNER or anyone from whom OWNER is responsible.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 Notice of Defects

A. Prompt notice of all defective Work of which OWNER or ENGINEER has actual knowledge will be given to CONTRACTOR. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 Access to Work

A. OWNER, ENGINEER, ENGINEER'S Consultants, other representatives and personnel of OWNER, independent testing laboratories, and governmental agencies with jurisdictional interest will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 Tests and Inspections

A. CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. OWNER shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. For inspections, tests, or approvals covered by paragraphs 13.03.C and 13.03.D below;
2. That costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.04.B shall be paid as provided in said paragraph 13.04.B; and
3. As otherwise specifically provided in the Contract Documents.
4. That costs incurred by OWNER due to retesting, reinspection, or standby time due to unacceptable materials, or workmanship provided by the CONTRACTOR, or due to poor scheduling by the CONTRACTOR of tests of inspections, will be deducted from the payments to the CONTRACTOR. CONTRACTOR shall stop work as necessary to allow for inspections and tests by OWNER and ENGINEER.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish ENGINEER the required certificates of inspection or approval.

D. CONTRACTOR shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for OWNER'S and ENGINEER's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to OWNER and ENGINEER.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by CONTRACTOR without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation.

F. Uncovering Work as provided in paragraph 13.03.E shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice.

G. The OWNER intends to provide inspection for the project. The inspector will be available during a forty (40) hour period during the week from Monday through Friday. In the event the CONTRACTOR receives permission from the OWNER and elects to work more than forty hours during the week or more than 10 hours in one day, or on a Saturday, Sunday, or legal holiday, the CONTRACTOR shall be responsible for all inspection, engineering and testing costs incurred during that period. For all inspection and testing work performed on Saturday, Sunday, or legal holidays the minimum chargeable time shall be four (4) hours. The OWNER reserves the right to deduct these inspection, engineering, and testing costs directly from the CONTRACTOR'S payments.

13.04 Uncovering Work

A. If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and replaced at CONTRACTOR'S expense.

B. If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as ENGINEER may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment. If it is found that such Work is defective, CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefore as provided in paragraph 10.05. If, however, such Work is not found to be defective, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement,

and reconstruction. If the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a Claim therefore as provided in paragraph 10.05.

13.05 OWNER May Stop the Work

A. If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause of such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 Correction or Removal of Defective Work

A. CONTRACTOR shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by ENGINEER, remove it from the Project and replace it with Work that is not defective. CONTRACTOR shall pay all Claims, costs, losses, damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

13.07 Correction Period

A. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract documents or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for CONTRACTOR's use by OWNER or permitted by Laws and Regulations as contemplated in paragraph 6.11.A is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions: (i) repair such defective land or areas, or (ii) correct such defective Work or, if the defective Work has been rejected by OWNER, remove it from the Project and replace it with Work that is not defective, and (iii) satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting there from. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or repaired or may have the rejected Work removed and replaced, and all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement work of others) will be paid by CONTRACTOR.

B. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

C. Where defective Work (and damage to other Work resulting there from) has been corrected or removed and replaced under this paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

D. CONTRACTOR's obligations under this paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 Acceptance of Defective Work

A. If, instead of requiring correction or removal and replacement of defective Work, OWNER (and, prior to ENGINEER's recommendation of final payment, ENGINEER) prefers to accept it, OWNER may do so, CONTRACTOR

shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to OWNER's evaluation of and determination to accept such defective Work (such costs to be approved by ENGINEER as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by CONTRACTOR pursuant to this sentence. If any such acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefore as provided in paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER.

13.09 OWNER May Correct Defective Work

A. If CONTRACTOR fails within a reasonable time after written notice from ENGINEER to correct defective Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.06.A, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days written notice to CONTRACTOR, correct and remedy any such deficiency.

B. In exercising the rights and remedies under this paragraph, OWNER shall proceed expeditiously. In connection with such corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the Site, take possession of all or part of the Work and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees, OWNER's other contractors, and ENGINEER and ENGINEER's Consultants access to the Site to enable OWNER to exercise the rights and remedies under this paragraph.

C. All Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by OWNER in exercising the rights and remedies under this paragraph 13.09 will be charged against CONTRACTOR, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, OWNER may make a Claim therefore as provided in paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of CONTRACTOR's defective Work.

D. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies under this paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 Schedule of Values

A. The schedule of values established as provided in paragraph 2.01.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to ENGINEER. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 Progress Payment

A. Applications for Payments

1. At least 20 days before the date established for each progress payment (but not more often than once a month), CONTRACTOR shall submit to OWNER an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials

and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that OWNER has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect OWNER's interest therein, all of which must be satisfactory to OWNER. Any request for partial or final payment shall specifically list the work completed. **To facilitate the proper and timely payment of applications, the OWNER requires that all applications must reference a valid PURCHASE ORDER NUMBER, as submitted to CONTRACTOR under the Notice to Proceed, be in original format; OWNER will not authorize payments from carbon or Xerox copies, and mailed directly to the following address:**

**City of Nashua
Accounts Payable
PO Box 2019
Nashua, NH 03061-2019
Attn: Division of Public Works**

2. Beginning with the second Application for Payment, each Application shall include an affidavit of CONTRACTOR stating that all previous progress payments received on account of the Work have been applied on account to discharge CONTRACTOR's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be stipulated in the Agreement.

B. Review of Applications.

1. ENGINEER will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application.
2. ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER's observations on the Site of the executed Work as an experienced and qualified design professional and on ENGINEER's review of the Application for Payment and the accompanying date and schedules, that to the best of ENGINEER's knowledge, information and belief:
 - a. The Work has progressed to the point indicated;
 - b. The quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.08 and to any other qualifications stated in the recommendation); and
 - c. The conditions precedent to CONTRACTOR's being entitled to such payment appears to have been fulfilled in so far as it is ENGINEER's responsibility to observe the Work.
3. By recommending any such payment ENGINEER will not thereby be deemed to have represented that: (i) inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents; or (ii) that there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or entitle OWNER to withhold payment to CONTRACTOR.
4. Neither ENGINEER's review of CONTRACTOR's Work for the purposes of recommending payments nor ENGINEER's recommendation of any payment, including final payment, will impose responsibility on ENGINEER to supervise, direct, or control the Work or for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for CONTRACTOR's failure to comply with

Laws and Regulations applicable to CONTRACTOR's performance of the Work. Additionally, said review or recommendation will not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes CONTRACTOR has used the moneys paid on account of the Contract Price, or to determine that title to any of the Work, materials, or equipment has passed to OWNER free and clear of any Liens.

5. ENGINEER may refuse to recommend the whole or any part of any payment if, in ENGINEER's opinion, it would be incorrect to make the representations to OWNER referred to in paragraph 14.02.B.2. ENGINEER may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

- a. The Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. The Contract Price has been reduced by Written Amendment or Change Orders;
- c. OWNER has been required to correct defective Work or complete Work in accordance with paragraph 13.09; or
- d. ENGINEER has actual knowledge of the occurrence of any of the events enumerated in paragraph 15.02.A.

C. Payment Becomes Due

1. Not more than 30 days after presentation of the application for payment to OWNER with ENGINEER's recommendation, the amount recommended will become due, and when due will be paid by OWNER to CONTRACTOR.

D. Reduction in Payment.

1. OWNER may refuse to make payment of the full amount recommended by ENGINEER because:

- a. Claims have been made against OWNER on account of CONTRACTOR's performance or furnishing of the Work;
- b. Liens have been filed in connection with the Work, except where CONTRACTOR has delivered a specific Bond satisfactory to OWNER to secure the satisfaction and discharge of such Liens;
- c. There are other items entitling OWNER to a set-off against the amount recommended; or
- d. OWNER has actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.02.B.5.a through 14.02.B.5.c or paragraph 15.02.A.

2. If OWNER refuses to make payment of the full amount recommended by ENGINEER, OWNER must give CONTRACTOR immediate written notice (with a copy to ENGINEER) stating the reasons for such action and promptly pay CONTRACTOR any amount remaining after deduction of the amount so withheld. OWNER shall promptly pay CONTRACTOR the amount so withheld, or any adjustment thereto agreed to by OWNER and CONTRACTOR, when CONTRACTOR corrects to OWNER's satisfaction the reasons for such action.

3. If it is subsequently determined that OWNER's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by paragraph 14.02.C.1.

14.03 CONTRACTOR'S Warranty of Title

A. CONTRACTOR warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.

14.04 Substantial Completion

A. When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Promptly thereafter, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of the Work to determine the status of completion. If ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving the reasons therefore. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate during which to make written objection to ENGINEER as to any provisions of the certificate or attached list. If, after considering such objections, ENGINEER concludes that the Work is not substantially complete, ENGINEER will within 14 days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefore. If after consideration of OWNER's objections, ENGINEER considers the Work substantially complete, ENGINEER will within said 14 days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as ENGINEER believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion ENGINEER will deliver to OWNER and CONTRACTOR a written recommendation to division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform ENGINEER in writing prior to ENGINEER's issuing the definitive certificate of Substantial Completion, ENGINEER's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

B. OWNER shall have the right to exclude CONTRACTOR from the Site after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

14.05 Partial Utilization

A. Use by OWNER at OWNER's option of any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which OWNER, ENGINEER and CONTRACTOR agree constitutes a separately functioning and usable part of the Work that can be used by OWNER for its intended purpose without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following conditions.

1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and ENGINEER that such part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, the provisions of paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

2. No occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of paragraph 5.10 regarding property insurance.

14.06 Final Inspection

A. Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will promptly make a final inspection with OWNER and CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. CONTRACTOR shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 Final Payment

A. Application for Payment

1. After CONTRACTOR has, in the opinion of ENGINEER, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in paragraph 6.12), and other documents, CONTRACTOR may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by subparagraph 5.04.B.7; (ii) consent of the surety, if any, to final payment; and (iii) complete and legally effective releases or waivers (satisfactory to OWNER) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in paragraph 14.07.A.2 and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full and an affidavit of CONTRACTOR that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or OWNER's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any lien.

B. Review of Application and Acceptance

1. If, on the basis of ENGINEER's observation of the Work during construction and final inspection, and ENGINEER's review of the final Application of Payment and accompanying documentation as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, ENGINEER will, within ten days after receipt of the final Application for Payment, indicate in writing ENGINEER's recommendation of payment and present the Application for Payment to OWNER for payment. At the same time ENGINEER will also give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.09. Otherwise, ENGINEER will return the Application for Payment to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due

1. Thirty days after the presentation to OWNER of the Application for Payment and accompanying documentation, the amount recommended by ENGINEER will become due and, when due, will be paid by OWNER to CONTRACTOR.

14.08 Final Completion Delayed

A. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed, and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment

shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 Waiver of Claims

A. The making and acceptance of final payment will constitute:

1. A waiver of all Claims by CONTRACTOR against OWNER other than those previously made in writing which are still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 OWNER May Suspend Work

A. At any time and without cause, OWNER may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if CONTRACTOR makes a Claim therefore as provided in paragraph 10.05.

B. If the performance of all or any part of the work is suspended, delayed or interrupted for an unreasonable period of time by an act of the OWNER in administration of the Contract, or by the OWNER's failure to act within the time specified in the Contract (or if no time is specified, within a reasonable time), the OWNER will make an adjustment for any increase in the cost of performance of this Contract (excluding profit) necessarily caused by such unreasonable suspension, delay or interruption and modify the Contract in writing. However, no adjustment shall be made under this clause for any suspension, delay or interruption to the extent (1) that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the CONTRACTOR, or (2) for which an equitable adjustment is provided for or excluded under any other provision of the Contract.

C. No claim under paragraphs 15.01.A or 15.01.B shall be allowed unless the amount claimed is asserted in writing as soon as practicable after the termination of such suspension, delay or interruption, but no later than the date of application for final payment under the contract.

15.02 OWNER May Terminate for Cause

A. The occurrence of any one or more of the following events will justify termination for cause:

1. CONTRACTOR's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.07 as adjusted from time to time pursuant to paragraph 6.04);
2. CONTRACTOR's disregard of Laws or Regulations of any public body having jurisdiction;
3. CONTRACTOR's disregard of the authority of ENGINEER; or
4. CONTRACTOR's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in paragraph 15.02.A occur, OWNER may, after giving CONTRACTOR (and the surety, if any) seven days written notice, terminate the services of CONTRACTOR, exclude CONTRACTOR from the Site, and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent that could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the Site or

for which OWNER had paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case, CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by OWNER arising out of or relating to completing the work, such excess will be paid to CONTRACTOR. If such claims, costs, losses, and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such claims, costs, losses, and damages incurred by OWNER will be reviewed by ENGINEER, incorporated in a Change Order. When exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

C. Where CONTRACTOR's service have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.03 OWNER May Terminate For Convenience

A. Upon seven days written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy of OWNER, elect to terminate the Contract. In such cases, CONTRACTOR shall be paid (without duplication of any items):

1. For completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
2. For expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by Contract Documents in connection with uncompleted Work, plus fair and reasonable sums of overhead and profit on such expenses;
3. For all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
4. For reasonable expenses directly attributable to termination.

B. CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

C. This Contract may be terminated in whole or in part in writing by the OWNER for its convenience, provided that the CONTRACTOR is given written notice (delivered by certified mail, return receipt requested) of intent to terminate, and an opportunity for consultation with the terminating party prior to termination.

D. If termination for default is effected by the OWNER, and equitable adjustment in the price provided for in this Contract shall be made, but (1) no amount shall be allowed for anticipated profit on unperformed services or other work, and (2) any payment due to the CONTRACTOR at the time of termination may be adjusted to cover any additional costs to the OWNER because of the CONTRACTOR's default. If termination for default is effected by the CONTRACTOR, or if termination for convenience is effected by the OWNER, the equitable adjustment shall include a reasonable profit for services or other work performed. The equitable adjustment for any termination shall provide for payment to the CONTRACTOR for services rendered and expenses incurred prior to the termination, in addition to termination settlement costs reasonably incurred by the CONTRACTOR relating to commitments which had become firm prior to the termination.

E. Upon receipt of a termination action under paragraphs 15.03.C or 15.03.D above, the CONTRACTOR shall (1) promptly discontinue all affected work (unless the notice directs otherwise), and (2) deliver or otherwise make available to the OWNER all data, Drawings, Specifications, reports, estimates, summaries and such other information and materials as may have been accumulated by the CONTRACTOR in performing this Contract, whether completed or in process.

F. Upon termination under paragraphs 15.03.C or 15.03.D above, the OWNER may take over the work and may award another party a contract to complete the work under this Contract.

G. If, after termination for failure of the CONTRACTOR to fulfill contractual obligations, it is determined that the CONTRACTOR had not failed to fulfill contractual obligations, the termination shall be deemed to have been for the convenience of the OWNER. In such event, adjustment of the Contract Price shall be made as provided in paragraph 15.03.D of this clause.

15.04 CONTRACTOR May Stop Work or Terminate

A. If, through no act or fault of CONTRACTOR, the Work is suspended for more than 90 consecutive days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within 30 days after it is submitted, or OWNER fails for 30 days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days written notice to OWNER and ENGINEER, and provided OWNER or ENGINEER do not remedy such suspension or failure within that time, terminate the Contract and recover from OWNER payment on the same terms as provided in paragraph 15.03. In lieu of terminating the Contract and without prejudice to any other right or remedy, if ENGINEER has failed to act on an Application for Payment within 30 days after it is submitted, or OWNER has failed for 30 days to pay CONTRACTOR any sum finally determined to be due, CONTRACTOR may, seven days after written notice to OWNER and ENGINEER, stop the Work until payment is made of all such amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 15.04 are not intended to preclude CONTRACTOR from making a Claim under paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to CONTRACTOR's stopping the Work as permitted by this paragraph.

B. This Contract may be terminated in whole or in part in writing by either party in the event of substantial failure by the other party to fulfill its obligations under the Contract through no fault of the terminating party, provided that no termination may be effected unless the other party is given (1) not less than ten (10) calendar days written notice (delivered by certified mail, return receipt requested) of intent to terminate, and (2) an opportunity for consultation with the terminating party prior to termination.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 Methods and Procedures

A. Dispute resolution methods and procedures, if any, shall be as set forth in the Supplementary Conditions. If no method and procedure has been set forth, and subject to the provisions of paragraphs 9.09 and 10.05, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

ARTICLE 17 - MISCELLANEOUS

17.01 Giving Notice

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 Computation of Times

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 Cumulative Remedies

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation or, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws and Regulations, by special warranty or guarantee, or by other provisions of the contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 Survival of Obligations

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, will survive final payment, completion, and an acceptance of the Work or termination or completion of the Agreement.

17.05 Controlling Law

A. The Contract is to be governed by the law of the state in which the Project is located, and any litigation arising out of this Contract shall be brought in a court located in the State of New Hampshire.

17.06 Access To Records

A. At all times during regular business hours, CONTRACTOR shall provide full and free access to the OWNER, ENGINEER, and State of New Hampshire to any books, documents, papers, and records related to the work for the purpose of examination, audit, and duplication. The CONTRACTOR shall maintain all required accounts, records, and books for three years after final completion of the work.

17.07 Road Closures and Traffic Delays

A. Partial or full closure of streets in order to facilitate construction will be permitted, or required by the Engineer in accordance with the following:

1. If the CONTRACTOR proposes a closure, the CONTRACTOR notifies the OWNER in writing at least 5 days prior to the proposed closure of his intent to close the road.
2. At least 5 days prior to the proposed closure, the CONTRACTOR shall submit a detour traffic plan for each location being detoured.
3. The CONTRACTOR shall install standard traffic control devices in accordance with the Detour Signage plan provided in the bid documents and the Manual on Uniform Traffic Control Devices (MUTCD.)
4. The detour signage shall be covered when the road closure is not in effect.

B. CONTRACTOR shall notify the following agencies of any traffic delays or road closures three days in advance of the work:

Nashua Police Department:	(603) 594-3500
Nashua Fire Department:	(603) 594-3652
School Bus Garage:	(603) 594-4300
Nashua Solid Waste Department	(603) 589-3410
Nashua Building Department	(603) 589-3080

17.08 Prohibited Interests

CONTRACTOR shall not allow any officer or employee of the OWNER to have any indirect or direct interest in this contract or the proceeds of this contract CONTRACTOR warrants that no officer or employee of the OWNER has any

direct or indirect interest, whether contractual, noncontractual, financial or otherwise, in this contract or in the business of CONTRACTOR. If any such interest comes to the attention of CONTRACTOR at any time, a full and complete disclosure of the interest shall be immediately made in writing to the OWNER. CONTRACTOR also warrants that it presently has no interest and that it will not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services required to be performed under this contract. CONTRACTOR further warrants that no person having such an interest shall be employed in the performance of this contract. If OWNER determines that a conflict exists and was not disclosed to the OWNER, it may terminate the contract at will or for cause in accordance with Article 15.02.

In the event Contractor (or any of its officers, partners, principals, or employees acting with its authority) is convicted of a crime involving a public official arising out or in connection with the procurement of work to be done or payments to be made under this contract, City may terminate the contract at will or for cause in accordance with paragraph 9. Upon termination, Contractor shall refund to the City any profits realized under this contract, and Contractor shall be liable to the City for any costs incurred by the City in completing the work described in this contract. At the discretion of the City, these sanctions shall also be applicable to any such conviction obtained after the expiration or completion of the contract.

Contractor warrants that no gratuities (including, but not limited to, entertainment or gifts) were offered or given by Contractor to any officer or employee of the City with a view toward securing a contract or securing favorable treatment with respect to the awarding or amending or making of any determinations with respect to the performance of this contract. If City determines that such gratuities were or offered or given, it may terminate the contract at will or for cause in accordance with Article 15.02.

The rights and remedies of this section shall in no way be considered for be construed as a waiver of any other rights or remedies available to the City under this contract or at law.

DIVISION 7
SUPPLEMENTARY CONDITION

TABLE OF CONTENTS
FOR SUPPLEMENTARY CONDITIONS

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ARTICLE 6 – CONTRACTOR’S RESPONSIBILITY.....	SC-2

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

ARTICLE 2 – PRELIMINARY MATTERS

SC-2.06B Subcontractor's Pre-Construction Meetings

Each individual Subcontractor will be required to attend a Pre-Construction Meeting to discuss technical, safety, schedule and other issues. Each meeting shall be attended by the Subcontractor's responsible person in charge for the work and by the subcontractor's superintendent.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

SC-4.02 Subsurface and Physical Conditions

A subsurface exploration program and geotechnical engineering evaluation was performed for use in the design of the traffic signal foundations. The report is provided as an Attachment to Division 9, Construction Specifications.

ARTICLE 6 – CONTRACTOR'S RESPONSIBILITY

SC-2.06C Labor; Working Hours

Normal working hours shall be used on this contract, except as stated below. Work will not be allowed on public ways on the day before or the day after a long weekend that involves a Holiday without the approval of the City and the NHDOT. Hours of work on public ways shall be limited between 9:00 AM and 3:00 PM, unless approval is granted by the governing authority, and may be further restricted by local permits.

Any construction that involves crossing the roadway or closing down two lanes of traffic in the City of Nashua shall be performed at night between the hours of 7:00 PM and 6:00 AM. Any proposed construction work during nighttime or weekends will be subject to the availability of City inspectors. The cost of inspection shall be borne by the City.

LIST OF EXHIBITS

- A. Notice of Award
- B. Notice to Proceed
- C. Application for Payment
- D. Change Order
- E. Intent to Assess Liquidated Damages
- F. Certificate of Substantial Completion
- G. Certificate of Final Completion
- H. Affidavit of Payment
- I. Consent of Surety for Final Payment

DIVISION 8 EXHIBITS

NOTICE OF AWARD

DATED: _____

TO: _____
(Bidder)

ADDRESS: _____

OWNER'S PROJECT NO. : _____

CONTRACT FOR: _____
(Insert name of Contract as it appears in the Bidding Document)

You are notified that your Bid dated _____, for the above Contract has been considered.
You are the apparent Successful Bidder and have been awarded a contract for:

(Indicate total Work, alternatives or sections or Work awarded)

The Contract Price of your contract is

(\$ _____)
(Insert appropriate data in re Unit Prices. Change language for Cost-Plus contracts.)

The proposed Agreement that the OWNER expects to execute, accompany this Notice of Award.

You must comply with the following conditions precedent within ten days of the date of this Notice of Award.

1. You must deliver to the OWNER 3 fully executed counterparts of this Notice to Award
2. You must deliver to the OWNER 3 fully executed counterparts of the proposed Agreement that the OWNER expects to execute
3. You must deliver to the OWNER the Contract Security (Bonds), as specified in the General Conditions (paragraph 5.01), and Certificate of Liability Insurance, as specified in General Conditions (paragraph 5.04).
4. (List other conditions precedents).

Failure to comply with these conditions within the time specified will entitle **OWNER** to consider your bid in default, to annul this Notice of Award and to declare your Bid Security forfeited.

Within ten days after receipt of acceptable performance BOND, payment BOND, and agreement signed by the party to whom the Agreement has been awarded, the **OWNER** will return to you one fully signed counterpart of the Agreement with the Contract Documents attached.

By _____
(AUTHORIZED SIGNATURE)

Project Engineer

(TITLE)

NOTICE TO PROCEED

DATED:

TO: _____
(Contractor)

ADDRESS: _____

OWNER'S CONTRACT NO. _____

PROJECT: _____
(Insert name of Contract as it appears in the Bidding Document)

You are notified that the Contract Times under the above contract will commence to run on _____, 20____. By that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement, the dates of Substantial Completion and Final Completion are _____ and _____, respectively.

Also before you may start any Work at the site you must:

(Add other requirements)

(OWNER)

By _____
(AUTHORIZED SIGNATURE)

(TITLE)

TO: _____
(OWNER)

OWNER'S PURCHASE ORDER NO. _____ ENGINEER'S PROJECT NO. _____

ITEM	CONTRACTOR's Schedule of Values			Work Completed	
	Unit Price	Quantity	Amount	Quantity	Amount
	\$		\$		\$
Total (Orig. Contract) C.O. No. 1 C.O. No. 2			\$		\$

AMOUNT DUE THIS APPLICATION \$

Application for Payment

Dated _____, 20____

(CONTRACTOR)

By _____
(Authorized Signature)

Payment of the above AMOUNT DUE THIS APPLICATION is recommended.

Dated _____, 20____

(ENGINEER)

By _____
(Authorized Signature)

INSTRUCTIONS

A. GENERAL INFORMATION

This standard form is intended as a guide only. Many projects require a much more extensive form with space for numerous items, descriptions of Change Orders, identification of variable quantity adjustments, summary of materials and equipment stored at the site and other information. It is expected that a separate form will be developed by Engineer or Contractor at the time Contractor's Schedule of Values is finalized. Note also that the format for retainage must be changed if the Agreement permits (or the Law provides), and Contractor elects, the deposit of securities in lieu of retainage. Refer to Article 14 of the General Conditions for provisions concerning payments to Contractor.

B. COMPLETING THE FORM

The Schedule of Values, submitted and approved as provided in paragraphs 2.6.3 and 2.9 of the General Conditions should be copied in the space indicated on the Application For Payment form. Note that the cost of materials and equipment is often listed separately from the cost of their installation. All Change Orders affecting the Contract Price should be identified and include such supplemental Schedules of Values as required for progress payments.

The form is suitable for use in the Final Application for Payment as well as for Progress Payments; however, the required accompanying documentation is usually more extensive for final payment. All accompanying documentation should be identified in the space provided on the form.

C. ENGINEER'S REVIEW

Engineer *must* review all Applications for Payment with care to avoid recommending any payments not yet earned by Contractor. All accompanying documentation of legal nature, such as lien waivers, should be reviewed by Owner's attorney, and Engineer should so advise Owner.

CHANGE ORDER

No. _____

PROJECT: _____

OWNER'S CONTRACT NO.: _____

DATE OF ISSUANCE: _____ EFFECTIVE DATE: Upon City Approval

OWNER: _____ City of Nashua, NH

OWNER's Purchase Order NO.: _____

CONTRACTOR: _____

ENGINEER: _____ DPW Engineering

You are directed to make the following changes in the Contract Documents: Description, Purpose of Change Order, and Justification. Attachments: (List Documents supporting change)

New Price and Time Summary:

<u>CHANGE IN CONTRACT PRICE:</u>		<u>CHANGE IN CONTRACT TIMES:</u>	
Original Contract Price		Original Contract Times	
		Ready for final payment: days or dates	
Net changes from previous Change Orders		Net change from previous Change Orders	
		days	
Contract Price prior to this Change Order		Contract Times prior to this Change Order	
		Ready for final payment: days or dates	
Net Increase (decrease) of this Change Order		Net Increase (decrease) of this Change Order	
		days	
Contract Price with all approved Change Orders		Contract Times with all approved Change Orders	
		Ready for final payment: days or dates	
<u>RECOMMENDED:</u>	<u>ACCEPTED:</u>	<u>APPROVED:</u>	
By: _____ Engineer (Authorized Signature)	By: _____ Contractor (Authorized Signature)	By: _____ Owner (Authorized Signature)	
Date: _____	Date: _____	Date: _____	

NOTICE OF INTENT TO ASSESS LIQUIDATED DAMAGES

PROJECT: _____

OWNER'S CONTRACT NO: _____

DATE OF ISSUANCE: _____

CONTRACTOR: _____

ENGINEER: _____

In accordance with Article 4 of the Agreement, the Work for the above-referenced project shall be substantially completed on or before _____, 20____, and completed and ready for final payment on or before _____, 20____.

The Work for the above-referenced project has been declared substantially complete in accordance with the Contract Documents on _____, 20____, and completed and ready for final payment on _____, 20____.

The Owner intends to assess and recover liquidated damages in accordance with Article 4, paragraph 4.03 of the Agreement. The Contract Agreement provides for liquidated damages in the amount of \$ _____dollars for each day after the date specified in paragraph 4.02 until the Work is substantially complete. After substantial completion, Contractor shall pay Owner \$_____dollars for each day that expires after the time specified in paragraph 4.02 for completion and readiness for final payment.

(OWNER)

(DATE)

CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT: _____

OWNER'S CONTRACT NO: _____

DATE OF ISSUANCE: _____

CONTRACTOR: _____

ENGINEER: _____

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the following specified parts thereof:

TO _____ City of Nashua
(OWNER)

And To _____
(CONTRACTOR)

The Work to which this Certificate applies has been inspected by authorized representative of OWNER, CONTRACTOR, and ENGINEER, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents on

(DATE OF SUBSTANTIAL COMPLETION)

A Tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by CONTRACTOR within _____ days of the above date of Substantial Completion.

From the date of Substantial Completion the responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance and warranties and guarantees shall be as follows:

RESPONSIBILITIES

OWNER: _____ City of Nashua _____

CONTRACTOR: _____

The following documents are attached to and made a part of this Certificate:

[For items to be attached see definition of Substantial Completion as supplemented and other specifically noted conditions precedent to achieving Substantial Completion as required by Contract Documents.]

This certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of CONTRACTOR's obligation to complete the Work in accordance with the Contract Documents.

Executed by ENGINEER on _____, 20 ____

(ENGINEER)

By: _____
(Authorized Signature)

CONTRACTOR accepts this Certificate of Substantial Completion on _____, 20 ____

(CONTRACTOR)

By: _____
(Authorized Signature)

OWNER accepts this Certificate of Substantial Completion on _____, 20 ____

(OWNER)

By: _____
(Project Manager)

CERTIFICATE OF FINAL COMPLETION

PROJECT: _____

OWNER'S CONTRACT NO.: _____

DATE OF ISSUANCE: _____

OWNER: _____ City of Nashua, NH

OWNER's Purchase Order NO.: _____

CONTRACTOR: _____

ENGINEER: _____ DPW Engineering

This Certificate of Final Completion applies to all Work under the Contract Documents or to the following specified parts thereof:

TO _____ City of Nashua
(OWNER)

And To _____
(CONTRACTOR)

The Work to which this Certificate applies has been inspected by authorized representative of OWNER, CONTRACTOR, and ENGINEER, and that Work is hereby declared to be finally complete in accordance with the Contract Documents on

(DATE OF FINAL COMPLETION)

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of CONTRACTOR's obligation to complete the Work in accordance with the Contract Documents. The Warranty for all Work completed expires one year from the date of this Final Acceptance

Executed by ENGINEER on _____, 20 ____

(ENGINEER)

By: _____
(Authorized Signature)

CONTRACTOR accepts this Certificate of Final Completion on _____, 20 ____

(CONTRACTOR)

By: _____
(Authorized Signature)

OWNER accepts this Certificate of Final Completion on _____, 20 ____

(OWNER)

By: _____
(Authorized Signature)

CONTRACTOR'S AFFIDAVIT

STATE OF: _____

COUNTY OF: _____

Before me, the undersigned, a _____
(Notary Public, Justice of Peace, Alderman)

in and for said County and State personally appeared,

(Individual, Partner or duly authorized representative of corporate contractor)

who being duly sworn according to law authorized representative of corporate contractor) deposes and says that the cost of all the Work, and outstanding claims and indebtedness of whatever nature arising out of the performance of the contract between

(Owner)

and _____ of _____
(Contractor) (Address)

dated _____ for the construction of the _____
(Project Name)

and necessary appurtenant installations have been paid in full.

(Individual, Partner, or duly authorized representative of corporate contractor)

(Title)

Sworn to and subscribed before me

this _____ day of _____, 20 _____

Notary Public

CONSENT OF SURETY FOR FINAL PAYMENT

OWNER's Project No.: _____

Project: _____

Type of Contract: _____ Amount of Contract (including
Change Orders): _____

CONTRACTOR: _____

Contract For: _____ Contract Date: _____

In accordance with the provisions of the above named contract between the OWNER and the CONTRACTOR, the following named Surety Company:

On the Payment Bond of the following named CONTRACTOR:

Hereby approves of final payment to the CONTRACTOR, and further agrees that said final payment to the CONTRACTOR shall not relieve the Surety Company named herein of any of its obligations to the following named OWNER; as set forth in said Surety Company's bond:

IN WITNESS WHEREOF, the Surety Company has hereunto set its hand and seal

this _____ day of _____, of 20_____.

(Name of Surety Company)

(Signature of Authorized Representative)

(Title)

(Affix corporate seal here)

**DIVISION 9
CONSTRUCTION
SPECIFICATIONS**

DIVISION 9 CONSTRUCTION SPECIFICATIONS

Note: The following Construction Specifications amend, revise, supplement and/or otherwise modify the New Hampshire Department of Transportation’s STANDARD SPECIFICATIONS FOR ROADWAY AND BRIDGE CONSTRUCTION (2010 edition as amended).

The following table is a list of all of the Supplemental Specifications that have been adopted by the NHDOT as additions or revisions to the “Standard Specifications for Road and Bridge Construction”, August 2010 Edition as of the date of this proposal. Some of the Supplemental Specifications are included and made a part of this proposal. The bidder is responsible to examine each item to determine its effect, if any, on the contract.

Section	Description	Revision	Last Revision Date	Current Revision Date
Division 100				
<u>101</u>	Definitions and Terms	Incorporates Electronic Bidding Terms		04/07/15
<u>102</u>	Bidding Requirements and Conditions	Incorporates Electronic Bidding into the Specifications		04/07/15
<u>104.04</u>	Scope of Work	Clarifies what materials may be re-used or mined		01/23/15
<u>104.07</u>	Railway-Highway Provisions	Specifies the NHDOT will reimburse the Railroad for Flagging Services through Force Account Agreements		01/14/15
<u>107.01</u>	Laws to be Observed	Bulletin Board Requirements	11/07/12	04/05/13
<u>107.01</u>	Legal Relations and Responsibility to Public	Revises wording pertaining to discharge and spillage into water		01/23/15
<u>108.06</u>	Methods and Equipment	Highlights Contractor's responsibility to prevent runoff of polluting materials		01/23/15
<u>108.09</u>	Failure to Complete on Time	Liquidated Damages Chart	10/05/10	04/14/14
<u>109.04</u>	Differing Site Conditions, Changes and Extra Work	Regional Adjustment Factor	03/12/10	09/01/10
<u>109.04.4.4</u>	Equipment and Plant	Rental Equipment Mark-up		11/07/12
<u>109.09</u>	Payments to Subcontractors	Prompt Payment		09/06/11

Section	Description	Revision	Last Revision Date	Current Revision Date
<u>109.11</u>	Measurement and Payment	Final Pay Quantity		11/07/12
Division 200				
<u>203</u>	General Blasting	3.1 & 3.2 reorganized; best management practices incorporated		04/07/15
<u>211</u>	Vibration Monitoring	References to Section 203 are updated; survey requirements are revised		04/07/15
<u>214</u>	Fine Grading	3.1 – Amends the tolerance for specific slopes prior to paving to 0.2%		01/10/13
Division 300				
<u>304</u>	Shoulder Leveling	2.6 – Specifies the material used for a shoulder leveling product.		04/07/15
<u>304</u>	Aggregate Base Course	3.1.4 – Specifies what recycled materials can be used as an aggregate base course		01/23/15
<u>306</u>	Reclaimed Stabilized Base	3.2 – Specifies what is to be done when stone is included or ordered 2.1.2 – Specifies stone used shall be in accordance with Table 1E found in Section 703 4.2 – Additional pass with the reclaimer will not measured 5.2 – Additional pass with the reclaimer will be subsidiary	01/23/15	05/21/15
Division 400				
<u>401</u>	Recycled Asphalt Shingles; TRB	Amends 1.2 & 2.10 – Disallows use of Recycled Asphalt Shingles in Asphalt Amends 2.4.3 – Amends use of Total Reclaimed Binder (TRB)		11/25/14
<u>401</u>	Recycled Oil in Asphalt	Amends 2.2.1 – Disallows use of used oil in Asphalt Adds 2.2.3.1 – Disallows use of used oil in Asphalt	09/08/14	05/14/15
<u>401</u>	Job Mix - General	2.5.1 - Revises ESAL/Minimum Binder Content Criteria and adds more sizes into Table 1 2.5.1.1 – Specifies that all 25mm base course mixes be designed using 50 gyrations	01/10/13	01/23/15
<u>401</u>	Asphalt Modifiers	2.11 - Adds QC/QA Specifications to High-Strength Mix Quantities over 2,000 Tons		01/10/13

Section	Description	Revision	Last Revision Date	Current Revision Date
<u>401</u>	MSCR Test	2.11.1 – Changes the requirements to AASHTO M 332		01/23/15
<u>401</u>	Warm Mix Asphalt	2.11.2 – Allows the use of WMA 3.4.11, 3.6.3.1 & 3.10.7.2 – Amends minimum delivery temperature to 260 ° F		01/23/15
<u>401</u>	Joints	2.12.1 - Adds Pavement Joint Adhesive Properties 3.13.4 – Assures full head of Material for Permanent Transverse Joints 3.13.5 - Removes Requirement for Hot Air Lance, Adds Requirements for Melting Kettle, and Allows Echelon Paving In Lieu of Pavement Joint Adhesive		01/10/13
<u>401</u>	Placing	Adds 3.10.4 - Sets limit of maximum compaction at 5 inches. 3.10.7.2 - Adds reference to WMA Supplemental	03/27/15	01/23/15
<u>401</u>	Pavers	Removes 3.11.3 – Performance Requirements to 3.11.1.1 for both QC/QA and Method Work Renames 3.11.1.1.1 – MTV Requirements to 3.11.3 and Assures Ability to Re-mix and Movable Discharge Conveyors for MTVs	12/14/11	01/23/15
<u>401</u>	Roller Trains	3.12.1 - Clarifies the equipment needed for a roller train 3.12.2.4 (formally 3.12.1.4) - Requires Informational Density Cores on Shoulders and Lessens Density Penalty for Overlays Not Previously Leveled 3.12.2.4.1 – Requires less cores on small quantity jobs	01/23/15	04/07/15
<u>401</u>	Acceptance Testing - Air Voids	3.17.3.2 - Revises AASHTO reference to ASTM reference, Requires Information Shoulder Cores, Eliminates Upper Limit of Core Thickness		01/10/13
<u>401</u>	Disputed Cores	3.17.3.2.2 - Amends number of cores required in a dispute to be three		01/23/15
<u>401</u>	Pavement Thickness	3.17.3.3 - Clarifies what should and should not be measured for thickness	01/23/15	02/24/15
<u>401</u>	Cross Slope Tolerance	3.17.3.5.2 - Amends cross slope tolerance to be 0.2%		01/23/15
<u>401/403</u>	401 - Plant Mix Pavements - General 403 - Hot Bituminous Pavement	Removes Final Pay Status for bridge base pavement		03/27/14

Section	Description	Revision	Last Revision Date	Current Revision Date
<u>410</u>	Bituminous Surface Treatment	<p>2.1 - Identifies Asphalt Emulsion Grades & Changes last line in table to Celsius, as well as changes the CRS-1 and CRS-1h temperature values</p> <p>3.4.1.1 - Updated to require a span of application rates of tack coat</p> <p>5.3 - Updated reference due to 401.3.10 revision</p> <p>Method of Measurement, Basis of Payment, and Pay Items and Units were revised to include new pay item 410.22</p>	03/27/14	05/14/15
<u>411</u>	Surface Treatment	<p>2.1.1 - Specifies Asphalt binder PG grade will be called for via Special Provision</p> <p>2.1.2 - Removes Type G mix from use</p> <p>3.4.4 - Amends minimum delivery temperature to 260° F (except for specified circumstances)</p> <p>3.4.8 - Specifies an 8' paver shall be used for Spot Drag Shim operations</p>	01/23/15	02/24/15
<u>417</u>	Cold Planing Bituminous Surfaces	3.1.1 & 3.1.3 - Specifies acceptable equipment for planing bituminous surfaces		01/23/15
Division 500				
NOTE The Supplemental for Section 511 was cancelled on 05/14/2015				
<u>511</u>	Preparation for Concrete Bridge Deck Repairs	Adds the Application of Anti-corrosion Coating to Uncoated Reinforcing Steel in Patch Areas		01/10/13
<u>520</u>	Bearing Strips	<p>Replaces 2.8 - Identifies bearing strip material and bonding agent.</p> <p>Adds 3.6.3.3 - Specifies Bearing Strips</p> <p>Amends 2.3.3.2 to update references to corrosion inhibitors</p>	03/27/14	01/14/15
<u>520</u>	Excess Cover and Grout	<p>2.9 - Removes Concrete Bonding Agent</p> <p>2.9.1 - Removes bridge deck overlays</p> <p>5.9.5.2 - Addresses negative pay adjustment for excess cover over Rail Support Slabs</p>		01/23/15
<u>520</u>	Portland Cement Concrete	Specifies the Surface Resistivity Test as a replacement for Rapid Chloride Penetration Test		01/23/15
<u>528</u>	Prestressed Concrete Members	Specifies the Surface Resistivity Test as a replacement for Rapid Chloride Penetration Test		01/23/15

Section	Description	Revision	Last Revision Date	Current Revision Date
<u>538</u>	Barrier Membrane	3.1.1 & 3.3.1.4 – Adds Requirement of Digital Ambient Temperature, Dew Point, and Infrared Surface Temperature Instruments 3.3.5 – Specifies Laydown Temperature of Pavement Overlays	01/10/13	01/23/13
<u>559</u>	Asphaltic Plug Expansion Joint, Asphaltic Plug Crack Control	New Section		10/16/13
<u>560</u>	Prefabricated Compression Seal Expansion Joint	Complete Revision of Section		10/16/13
<u>561</u>	Prefabricated Expansion Joint	Complete Revision of Section		10/16/13
<u>563</u>	Bridge Railing	Remove Final Pay (F) from Items		11/07/12
<u>566</u>	Elastomeric Joint Seal	Deletes Section 566		01/23/15
<u>582</u>	Slope Paving	Removes Bed of Sand Requirement		11/25/14
<u>591</u>	Structural Plate Pipes, Pipe-Arches, and Arches	3.1.2 - Expands LRFD Bridge Construction Specifications to include assembly and installation of structural plate structures		01/23/15
<u>593</u>	Geotextile	Amends paragraphs 2.1 and replaces 2.3.2 to present NTPEP audit program and update test methods.		03/27/14
Division 600				
<u>603</u>	Culverts and Storm Drains	Revises 1.1 and 5.1 - Stipulates sawed pavement required for this work shall be subsidiary Adds 3.1.10 – Conformance to 628.3.4 Amends 2.9.1 – PVC Manufacturers' Participation in NTPEP Revises structure of Materials section and adds new requirements for pipe manufacturers. Revises 3.7.1 to specify the Engineer shall be made aware of pipe deformation as soon as practicable	06/30/14	02/24/15
<u>604</u>	Catch Basins, Drop Inlets and Manholes	Revises 1.1 and 5.1 - Stipulates sawed pavement required for this work shall be subsidiary Adds 3.1.3 – Conformance to 628.3.4		04/14/14
<u>604</u>	Catch Basins, Drop Inlets and Manholes	Adds new pay item 604.0002 - Clean Drainage Structure		05/14/15
<u>605</u>	Underdrains	Adds 605.2.3 – PVC Manufacturer's Participation in NTPEP		06/30/14

Section	Description	Revision	Last Revision Date	Current Revision Date
<u>606</u>	Guardrail	Updates Retroreflective Sheeting to current AASHTO standards		01/23/15
<u>606</u>	Guardrail	Amends 3.3 to require the Contractor provide detail sheets		01/14/15
<u>608</u>	Detectable Warning Devices	Revises Description, Equipment, and Construction Requirements sections		06/30/14
<u>614</u>	Electrical Conduit	Revises 1.1 and 5.1 - Stipulates sawed pavement required for work shall be subsidiary Adds 3.1.3 – Conformance to 628.3.4		04/14/14
<u>618</u>	Training Requirements for Uniformed Officers and Flaggers	Delete and Add revised Description, Equipment, and Construction Requirements sections 2.1 - Specifies blue lights of officers' vehicles having 360 ° Visibility	01/04/12	01/23/15
<u>619</u>	Trailer Mounted Speed Signs	2.1.3 & 2.1.3.1 - Updates Retroreflective Sheeting to current AASHTO standards 3.2.3.1 - Revises how the Contractor gets approval		01/23/15
<u>621/622</u>	621-Delineators 622-Markers and Bounds	621 – AASHTO Update & Required Documentation; specifies posts; updates colors 622 – Required Documentation	04/03/14	09/08/14
<u>624</u>	Railroad Protection	Removes Railroad Protection as a pay item and updates the reference to Section 104.07		01/14/15
<u>628</u>	Sawed Pavement	Replaces 5.2 and Adds 4.2 - Stipulates sawed pavements requirements and the work it shall be subsidiary for Adds 5.3 – When payment is under 628.3		04/14/14
<u>632</u>	Retroreflective Pavement Markings	Add 2.2.1 - Arsenic and Lead Levels in Glass Beads Delete 632.3.2.8.1 & 632.3.2.8.2	03/07/11	11/07/12
<u>644</u>	Grass Seed – Slope Seed (WF) Type 45 Mix	Amend 2.3		10/02/11
<u>645</u>	Erosion Control	3.2.1.2 - Clarifies ambiguous CESSWI language 3.1.7 – Amends Requirement for Permanent Stabilization from 14 Days to 3 Days Amends 4.6.1, 4.6.1.1, and 5.6 regarding SWPPP and SWPPP monitoring measurement and payment	01/24/14	01/23/15

Section	Description	Revision	Last Revision Date	Current Revision Date
<u>645</u>	Erosion Control	Clarifies language in the spec to be more in line with the NPDES.		03/06/15
<u>698</u>	Field Office Facilities	Updates Field Offices and Required Equipment by Replacing Section 698	01/15/12	01/06/15
Division 700				
<u>718</u>	Retroreflective Sheeting	Updates for current ASTM Specifications and Removal of Certain Film Requirements	09/04/13	11/06/13

SECTION 101 – DEFINITION AND TERMS

Amend Section 101 to include and/or revise the following definitions:

- The "Contractor" shall mean the person or entity identified as such in the Owner-Contractor Agreement.
- The "Engineer" shall mean Greenman-Pedersen, Inc., 181 Ballardvale Street, Suite 202, Wilmington, Massachusetts 01887.
- The "NHDOT" shall mean the New Hampshire Department of Transportation.
- The "Municipality" and the "City" shall mean the City of Nashua, the local government in which the Contract work is to be performed.

SECTION 104 – SCOPE OF WORK

Amend Subsection 104.01, Intent of Contract, to include the following:

The work includes but is not limited to the following: excavation, paving, modifying drainage structures, installing drainage structures and pipes, resetting of existing curb and installation of new curb, full depth roadway construction, cold planing and overlay, cement concrete sidewalk and wheelchair ramps, hot bituminous sidewalk, utility relocations, traffic signing and pavement markings, spreading loam and seed, traffic control management during construction, and other street improvements in accordance with the Plans and these Supplemental Specifications. For the purposes of these Construction Specifications, the words "the Plans" shall mean the set of drawings prepared by Greenman-Pedersen, Inc. titled "Amherst Street (NH Route 101A) Corridor Improvements in the City of Nashua, Hillsborough County, State of New Hampshire."

Work also includes the removal of existing and installation of new traffic control signals at the Amherst Street intersections with Charron Avenue and with the proposed Site Driveway.

The work is proposed on public right-of-way currently under the jurisdiction of the City of Nashua, NH.

All work done under this contract shall be in conformance with the New Hampshire Department of Transportation's STANDARD SPECIFICATIONS FOR ROADWAY AND BRIDGE CONSTRUCTION (2010 edition as amended), the NHDOT's STANDARD PLANS FOR ROAD AND BRIDGE CONSTRUCTION, the 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, the PLANS and the amendments and supplemental conditions to the NHDOT Standard Specifications contained in Division 9 of these Construction Specifications.

Amend Subsection 104.03, Maintenance of Traffic, with the following:

1. The Contractor shall not impede traffic and pedestrians within the project area on holidays or the day immediately before and after any City of Nashua observed holiday.
2. A minimum of one (1) travel way shall be maintained in each direction at all times during construction. Shoulder work shall be conducted on one side of the roadway at a time during roadway widening operations.
3. All work shall be prosecuted in a manner to permit unimpeded traffic flow whenever possible. The interruption of traffic will not be permitted unless specifically allowed by the City or the Engineer. Workday operations shall be scheduled to minimize disruption to peak commuter traffic. Work within the traveled ways shall be restricted to the hours of 9 A.M. and 3 P.M.
4. The Contractor shall adhere to the traffic control plans, notes, and details in the Proposal in the progression of work. As appropriate, the Contractor may suggest alternate traffic control plans that may differ from the Standard Plans to address local conditions. Prior to implementing alternate traffic control plans, the Contractor must present these plans to the City and the Engineer for approval.

5. All construction signing shall be supplied, erected, maintained, and removed by the Contractor.
6. Access to all abutting properties shall be maintained at all times. In the event that major work must be done at drives that precludes full-access, the Contractor is to coordinate the work with the property owner to minimize inconveniences.
7. Access to emergency vehicles shall be maintained throughout the life of the project.
8. Prior to commencing any construction activity or at the change of major construction phases, the Contractor shall notify the Nashua Fire Department and provide information regarding traffic control operations, especially in those instances, such as the installation of conduit crossings when equipment may block the roadway, where the flow of traffic through the work zone may be temporarily interrupted.
9. Suspensions Ordered by the City or Winter Suspensions due to climatic conditions - The Contractor shall make passable and open to traffic the sections of the project and temporary roadways as agreed upon between the Contractor and the City for the accommodation of necessary traffic during the anticipated period of suspension. During this suspension period the maintenance of the temporary roadway and sections of the Project shall be the responsibility of the Contractor, except for snow removal operations, which will be the responsibility of the City. When Work is resumed, the Contractor shall replace or restore any work or materials lost or damaged because of the temporary use of the Project and remove work or materials used in the temporary maintenance and complete the Project as though its prosecution has been continuous and without interference. Additional work caused by the suspension, for reasons beyond the Contractor's control, will be paid for at Contract prices or by Extra Work.
10. Other Suspensions of Work - When Work is suspended due to seasonal or climatic conditions or, for failure to correct conditions unsafe for the workers or the general public, for failure to carry out orders of the City or for other reasons caused by the Contractor, all costs for maintenance of the roadway to accommodate traffic during the suspended period shall be borne by the Contractor.
11. Maintenance Directed by the City - If the City directs special maintenance for the benefit of the traveling public not otherwise included in the Contract, payment will be on the basis of Contract unit prices or under Subsection 104.03 Changes in the Character of Work. The City will determine the work to be classed as special maintenance.

Amend Subsection 104.04, Rights In and Use of Materials Found on the Project, with the following:

All items designated to be removed and stacked on the plans within the city layout and noted to be stacked shall be delivered and stacked at the Nashua Department of Public Works maintenance facility as directed by the Public Works Director or his duly authorized representative by the Contractor at no additional charge to the City.

Existing pullboxes and drainage structures to be abandoned under the proposed work shall be removed, and frames, grates and covers shall be removed and stacked. All existing conduit to be abandoned may

remain, however, all unused wiring shall be removed from the conduit.

If the City or the Engineer determines that the material(s) is unsuitable for re-use, and the City decides to abandon part or all of said material(s), the Contractor shall dispose of the material(s) outside and away from the limits of the project, without additional compensation.

All surplus materials resulting from work under this Contract, and not needed for use on the project and not directed to be stacked as determined by the Engineer and/or the City shall become the property of the Contractor and shall be disposed of by the Contractor outside and away from the limits of the project subject to the regulations and requirements of local authorities governing the disposal of such materials.

Delete Subsection 104.11, Value Engineering Change Proposals by the Contractor, in its entirety.

SECTION 105 – CONTROL OF THE WORK

Amend Subsection 105.06, Cooperation with Utilities, with the following:

Written notice shall be given by the Contractor to all public service corporations or officials, owning or having charge of publicly or privately owned utilities, of his intention to commence operations affecting such utilities at least one week in advance of the commencement of such operations, and the Contractor shall, at that time, file a copy of such notice with the City.

Before the Contractor begins any work or operations that might damage any subsurface structures, he shall carefully locate all such structures and conduct his operations so as to avoid any damage to them.

New Hampshire State Law, RSA 374:48-56, requires that anyone who excavates in a public way or utility easement must notify the utility damage prevention system, DIG-SAFE, at least 72 hours prior to starting work. See Section 105.06 Cooperation with Utilities of the Standard Specifications.

DIG SAFE Call Center 1-888-344-7233 or Dial 811

Full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in protecting or repairing property as specified in this section, shall be considered as included in the Lump Sum Bid Price and no additional compensation will be allowed therefor.

The following are the names and addresses of the utilities presumed to be affected; however, the completeness of the list is not guaranteed.

City of Nashua, NH

City of Nashua Engineering Department
9 Riverside Street
Nashua, NH 03062
Telephone: (603) 589-3120
Attn: Jeanne Walker

City of Nashua Fire Dept. Comm. Center
38 Lake Street
Nashua, NH 03060
Telephone: (603) 594-3636
Attn: Jeremy Audette

FairPoint Communications
770 Elm Street
Manchester, NH 03101
Telephone: (603) 645-2705
Attn: Yew Chai

Liberty Utilities
15 Buttrick Road
Londonderry, NH 03053
Telephone: (603) 681-9197
Attn: Andrew Bernier

Eversource (formerly PSNH)
780 N Commercial Street
Manchester, NH 03101
Telephone: (603) 882-1387 x5272
Attn: Elizabeth Bradshaw

Comcast
751 East Industrial Park Drive
Manchester, NH 03109
Telephone: (603) 770-0280
Attn: Julio Medina

Pennichuck Water Works Inc.
25 Manchester Street
Merrimack, NH 03054
Telephone: (603) 913-2324
Attn: Peter Tedder

Amend Subsection 105.07, Cooperation Between Contractors, with the following:

Concurrent work may be in progress in the project area by the NHDOT, the City, by utility companies, by other contractors hired by the City, or by other contractors hired by private parties. The Contractor is required to coordinate his activities with these parties. See Section 105.07, Cooperation Between Contractors, of the Standard Specifications. No additional compensation shall be provided to the Contractor as a result of coordination between the various contractors.

Work shown on the construction documents may require temporary sloping at the limits of work. Where grades at the limits of work do not meet due to construction scheduling, the Contractor is responsible to provide a temporary 4:1 slope.

Replace the first paragraph of Subsection 105.08, Construction Stakes, Lines, and Grades, with the following:

The Contractor's Work associated with furnishing complete line and grade control shall be in accordance with Section 4.05 of the General Conditions of these Construction Documents.

Add the following paragraphs to Subsection 105.08, Construction Stakes, Lines, and Grades:

The Contractor shall exercise due care when working around all layout bounds and property markers that are to remain. This shall include, but not necessarily be limited to, concrete and granite bounds, iron rods, rebars, stakes, pipes, nails, or any other property or layout markers whether existing or proposed under this project. Should any damage to a property marker result from the actions of the Contractor, the marker shall be replaced, realigned, and/or reset to its intended position by a Licensed Land Surveyor hired by the Contractor as directed by the Engineer. No further compensation will be due to the Contractor for the materials and labor required to re-establish the property marker as described above.

At the completion of the work, the Contractor shall submit a set of working drawings (red-lines) and As-Built drawings to the Engineer prior to the scheduling of a final inspection with the municipalities and the NHDOT. The As-Built drawings shall indicate any field adjustments of curbing and utilities, all buried structures, drainage inverts, top of grade, centerline grade and top/bottom of curbing of streets at approximately 50-foot stations to the nearest 0.01 foot, all utility locations and service ties. The Contractor shall also provide the exact location of all traffic control signal equipment installed as part of the project. The As-Built drawings shall be submitted to the City on mylar, 24" x 36" size, and electronically, on CD ROM in AutoCAD 2010 or more recent version.

Add the following paragraph to Subsection 105.10, Inspection of Work:

For the purpose of observing work that affects their respective properties, inspectors for the municipalities, public agencies, and the utility companies shall be permitted access to the work site. In addition, inspectors may be assigned by the City of Nashua to oversee construction of the work shown on the Plans, and shall have the authority to govern the work shown on the Plans. However, any directives that result in an increase in quantities or the addition of new items shall be authorized and issued through the City. The cost of any and all such inspection shall be borne by the City.

Add the following paragraph to Subsection 105.17, Project Acceptance:

The Contractor shall notify the Engineer in writing whenever the Contractor believes that all traffic signal work is complete. In this notification he shall propose a starting date of the fine tuning period, adjustment and testing period. Such date shall not be effective unless and until the Engineer gives his consent to such date.

Add Subsection 105.20, Notice to Emergency Service and Public Transportation Officials:

Written notice shall be given by the Contractor to all public emergency service or public transportation officials of his intention to commence operations affecting such utilities at least 48 hours in advance of the commencement of such operations, and the Contractor shall, at that time, file a copy of such notice with the City. In addition, the contractor shall provide the officials with a 24-hour contact name and number should any issues arise as a result of the work.

The following are the names and addresses of the emergency services or public transportation officials presumed to be affected; however, the completeness of the list is not guaranteed.

Nashua Fire Department
70 East Hollis Street
Nashua, NH 03060
Telephone: (603) 594-3654
Attn: Chief Steven G. Galipeau

Nashua Police Department
0 Panther Drive
Nashua, NH 03062
Telephone: (603) 594-3500
Attn: Chief Andrew J. Lavoie

NH Department of Transportation
Highway Maintenance District #5
16 East Point Drive
Bedford, NH 03110
Telephone: (603) 666-3336
Attn: Richard Radwanski

Greenman-Pedersen, Inc.
181 Ballardvale Street, Suite 202
Wilmington, MA 01887
Telephone: (978) 570-2999
Attn: Heather Monticup
Email: hmonticup@gpinet.com

SECTION 106 – CONTROL OF MATERIAL

Amend Subsection 106.01, Source of Supply and Quality Requirements, with the following:

All materials installed under this Contract shall be listed on the NHDOT Qualified Products List as appropriate, unless otherwise specified in these Construction Specifications. A list of materials proposed to be installed shall be provided by the Contractor to the Engineer and the City.

Amend Subsection 106.03, Samples, Tests, Cited Specifications, with the following:

Material sampling and testing is to be in accordance with NHDOT procedure for progress and performance. Testing is to be provided by the City as administered through the Engineer. The schedule of testing is to be established by the Contractor in accordance with Section 106 of the NHDOT Specifications.

Additional testing required for the Contractor's information may be provided by the same testing agency but will be at the Contractor's expense. The Contractor will be responsible for any charges to the City from the testing agent that result from a delay in testing procedures after being scheduled due to ongoing construction operations or an unprepared site.

See also Section 13.03 of the General Conditions for additional information.

Amend Subsection 106.06, Storage and Handling of Materials, with the following:

The Contractor shall not store equipment, construction vehicles, and materials within the clear zoned of the traveled way. Location of storage areas within the right-of-way will be subject to the approval by the appropriate agency. The Contractor shall maintain a clear travel-way for emergency vehicles and general access to abutting properties at all times.

No operation shall be conducted on or near the traveled lanes or roadway shoulders without first erecting signs, lights, and barricades, as required and prior to approval of the Engineer. If such operations result in traffic backups, they shall be immediately discontinued.

SECTION 108 – PROSECUTION AND PROGRESS

Replace the second paragraph of Subsection 108.04, Limitation of Operations, with the following:

For the purposes of scheduling, the Contractor shall assume that no work will be performed on public ways on Saturdays, Sundays or Holidays. Work also will not be allowed on public ways on the day before or the day after a long weekend that involves a Holiday without the approval of the City and the NHDOT. Hours of work on public ways shall be limited between 9:00 AM and 3:00 PM, unless approval is granted by the governing authority, and may be further restricted by local permits.

Any construction that involves crossing the roadway or closing down two lanes of traffic in the City of Nashua shall be performed at night between the hours of 7:00 PM and 6:00 AM. Any proposed construction work during nighttime or weekends will be subject to the availability of City inspectors. The cost of inspection shall be borne by the City.

Work involving machinery or any other work which results in a noise nuisance in abutting areas shall not be started prior to 7:00 AM or continue past 7:00 PM.

No hot mix asphalt pavement shall be placed on public ways from November 15th to April 15th of the following year without written permission of the Engineer. Wearing course shall not be scheduled for placement after October 1st of any year without written approval of the City of Nashua and/or the NHDOT.

When the air temperature falls below 50°F, extra precautions shall be taken in drying the aggregates controlling the temperatures of the materials and compacting the mixtures.

No work is to be performed in the immediate vicinity of any electric or telephone company utility poles, structures or wires without prior notice (at least 48 hours) to the affected company.

Replace Subsection 108.03A, Progress Schedule, with the following:

The Contractor shall provide the Engineer with a proposed schedule of operations. The schedule of operations shall include a plan of his construction procedures and the safety measures he will use during the prosecution of the work. The City and/or the Engineer shall review the schedule for general Contract compliance, but will not be responsible for the Contractor's operations or safety procedures. The schedule also shall include the time the Contractor proposes to complete the various items of work. **The schedule of operations shall be submitted five (5) days after the award of the contract.**

Amend Subsection 108.03C, Traffic Control Plan, with the following:

The following Standards and Specifications are considered to be part of the Traffic Control Plan and Contract Documents.

- Sections 618 and 619 of the NHDOT Standard Specifications, 2010 edition as amended
- NHDOT Work Zone Traffic Control Standard Plans

- Manual on Uniform Traffic Control Devices (MUTCD), 2009 edition
- State of NH Flagger Handbook

In addition to the above, Amherst Street serves existing businesses, and shall remain open to traffic at all times during construction.

Amend Subsection 108.06, Methods and Equipment, with the following:

Sawcuts shall be made in areas of full depth construction, at all Limits of Work (including driveways), in areas of curb installation, for installation of utilities and conduit, and at all other locations as directed by the Engineer.

All edges of excavations made in existing pavements and sidewalks shall be squared by sawcutting with power driven tools to provide a neat, clean edge for joining new pavement or sidewalks.

Payment shall be considered incidental to the various items of work.

SECTION 202 – REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Construction Requirements

Section 3.3, Removal of Pipes and Other Drainage Structures, add the following:

3.3.4 Drainage structures abandoned or removed shall be done in accordance with NHDOT Standard Specifications. Existing frames and grates or covers on structures to be abandoned, removed or changed-in-type shall be removed and stacked unless, in the judgment of the Engineer, they are not suitable for re-use. Existing drainage frames and grates or covers to be re-used or to remain and found to be unsafe or inadequate shall be replaced as directed by the Engineer. Existing parallel-type grates may not be re-used, and shall be replaced where bicycle traffic is allowed.

3.3.5 Unsuitable frames and grates shall become the property of the Contractor and shall be disposed of off the site at no additional cost.

SECTION 203 – EXCAVATION AND EMBANKMENT

Classification of Materials

Section 2.3, revise in its entirety to read as follows:

2.3 Unclassified excavation shall consist of all materials of whatever character encountered in the work. This item shall include, but not necessarily be limited to, existing asphalt and concrete sidewalks, granite curb, soil, loam and grass areas, test pits, and all other items designated for removal and disposal which are not paid for under other items.

Construction Requirements

Add Section 3.14, Test Pits, to read as follows:

Exploratory test pits may be requested of the Contractor by the Engineer during construction. The purpose of these test pits will be to identify potential conflicts between existing subsurface utilities and the proposed drainage and water supply systems. The contractor shall take special care during this excavation to avoid damage to any existing structure or conduit. Hand excavation may be required to ensure no damage to surrounding utilities. The contractor shall cooperate with representatives of public service companies in order to avoid damage to their structures by permitting them to erect suitable supports, props, shoring or other means of protection.

The Contractor shall accurately locate the horizontal and vertical position of any utility that may be in conflict with the proposed drainage system, and provide the information to the Engineer for resolution. After excavating the test pit, the pit shall be backfilled in accordance with the NHDOT Standard Specifications. The surface shall be restored to its original condition unless otherwise directed by the Engineer.

Failure to perform test pits in a timely manner shall negate any claims of delay by the Contractor in the resolution of utility conflicts.

Basis of Payment

Add Section 5.14 to read as follows:

Full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in the test pit exploration program as specified in this section, shall be paid for under Item 203.3

SECTION 403 – HOT BITUMINOUS PAVEMENT

Description

Section 1.1.1, revise in its entirety to read as follows:

1.1.1 Hand method shall include only the paving of raised islands, slopes, cattle passes, areas between rails at railroad crossings, existing sidewalks, drives, drive aprons, curb patch between concrete barrier and pavement, curb patch between granite curb and pavement, and paving of 50 tons or less added after the completion of paving operations. Hand method shall also include patching of trenches and driveway areas to provide temporary access and egress to all properties abutting the work that lie within the limits of any existing paved surface to be retained. The work also includes patching and temporary ramp construction at the limits of work as directed by the Engineer.

Section 1.3, revise in its entirety to read as follows:

1.3 This work shall consist of constructing bituminous pavement under nighttime operation. Night paving shall be at the discretion of the Contractor after approval by the City.

Add Section 1.4 to read as follows:

1.4 Stamped Hot Bituminous Pavement shall consist of the construction of hot mix asphalt textured pavement in accordance with Section 401 of the NHDOT Standard Specifications and as described below.

Materials

Add Section 2.3 to read as follows:

2.3 Hot mix asphalt textured pavement is executed by elevating the temperature of an asphalt pavement surface and then pressing a metal template into the surface to replicate, in relief, the design as shown on the plans. The imprinted asphalt pavement surface is then coated with a coating or system of coatings specifically formulated for asphalt pavement.

The asphalt pavement coating shall provide for a durable, long lasting color and texture to asphalt pavement surfaces. The asphalt pavement coating must be environmentally safe and meet EPA requirements for Volatile Organic Compounds (VOC).

The following table outlines the minimum required performance properties of the asphalt pavement coating. These performance properties must be ascertained by a Certificate of Analysis issued by an approved testing facility.

TABLE 1: Required Performance Properties of Asphalt Pavement Coating

Characteristic	Test Specification	Minimum Required result
Durability Taber Abrasion (cycles to wear-through)	ASTM D-4060 Abrasion Resistance of Organic Coatings (wet wear) 7 day cure, 24 hour soak;H-10 wheel	Wear Index (WI) < 5.0
Color stability	ASTM G-155 QUV 2,000 hours (CIE units)	Brick color $\Delta E < 1.5$
Flexibility: Mandrel Bend	ASTM D522-93A Flexibility as measured by Mandrel bend 0.5mm thick sample passes 10 mm at 21°C 0.5mm thick sample passes 125mm at -18°C	
Chemical resistance	ASTM D-2486 Modified MEK scrubs 16 dry mils, number of scrubs until 50% substrate exposed	>5000
Adhesion to Asphalt	ASTM D-4541	Substrate Failure
Friction Wet	ASTM E-303 British Pendulum Tester	>55
Environmental Sensitivity	EPA 24 ASTM D3960-05 Volatile Organic Compounds	VOC < 150

The color for the asphalt textured pavement shall be warm brick, and the pattern shall be offset brick. The Contractor shall submit pattern and color samples to the Engineer for approval by the City. The Contractor shall construct a demonstration panel with a minimum size of 6 feet by 6 feet showing the selected patterns and color to be used on this project. The Contractor shall adjust the patterns and color shading until the pattern and color shading are approved by the City for use on the project. The Contractor shall remove and dispose of the demonstration panel before the completion of the project.

The template to form the textured surface shall provide clean, neat edges for the pattern shown on the plans.

Construction Requirements

Add Section 3.5 to read as follows:

The Contractor performing the Stamped Hot Bituminous Pavement shall be experienced and qualified in the highly specialized process required in working with the proper equipment and applying highly specialized coating(s) designed specifically for application to asphalt pavement. The Contractor shall provide certification that he is qualified to perform this work.

The asphalt pavement reheat equipment shall be specifically designed for asphalt pavement texturing. The primary asphalt pavement re-heat equipment shall cycle the heat application and shall allow the equipment operator to check the pavement surface temperature during the heating process to enable the pavement temperature to be elevated gradually, giving the operator the ability to ensure that the

pavement is not overheated or adversely affected. Heaters without these controls are strictly prohibited as the primary re-heat equipment. Hand-held portable heating devices shall only be used when approved by the Engineer for areas where it is difficult to operate the re-heat machine. They shall not be used as the primary pavement re-heating device.

The Contractor may use finishing tools that are designed to enable the applicator to complete the imprinting of the asphalt pavement in areas which may be inaccessible to the template such as curbs and manhole covers.

Vibratory Plate Compactors shall be used for pressing the templates into the heated asphalt pavement to create the specified pattern.

Specialized coating spray equipment shall be used in the application of the coating and shall be capable of applying the coating to the asphalt pavement surface in a thin, controlled film which will optimize the drying and curing time of the coating. More specifically, the spray equipment pump must be capable of providing a continuous recirculation of the coating in order to keep the solids within the coating in suspension. The coating shall not be applied with a brush or roller.

The asphalt pavement surface shall be dry and free from all foreign matter, including but not limited to dirt, dust, de-icing materials, and chemical residue. The pattern for imprinting into the surface of the asphalt pavement shall be offset brick.

The surface temperature of the pavement shall not exceed 325°F as determined by an infra-red thermometer reading taken after the heat is applied to the asphalt pavement.

The temperature of the asphalt pavement must be elevated to a minimum depth of 1/2 inch without burning the pavement surface. This shall be accomplished using asphalt pavement reheat equipment that is specifically designed for this work.

When the asphalt pavement has reached proper temperature, the templates shall be placed in position and pressed into the surface using vibratory plate compactors. The top of the template shall be flush with the surrounding asphalt pavement before it is removed. Areas that have an imprint depth less than 3/8 inch shall be re-heated and re-stamped prior to applying the coatings. Hand tooling is only permitted to achieve proper imprint depth in areas where the Engineer has determined it is not practical for using the template.

Methods of Measurement

Subsection 4.1.1, revise in its entirety to read as follows:

4.1.1 Hot bituminous pavement, machine or hand method, will be measured in the same manner as 4.1. No separate measurement will be made for nighttime operations, but all hot bituminous pavement, machine or hand method, shall be measured per ton. Lighting necessary at the plant or at the site shall be incidental to the item.

Add Section 4.2 to read as follows:

Item 403.01, Stamped Hot Bituminous Pavement will be measured for payment by the square yard, complete in place.

Basis of Payment

Subsection 5.1.1, revise in its entirety to read as follows:

5.1.1 Hot bituminous pavement, machine or hand method, will be paid for at the Contract unit price per ton, complete in place. No separate payment shall be made for pavement placed at night. Lighting necessary at the plant or at the site for night operations shall be incidental to the item. Hot Bituminous Concrete Leveling Course shall be paid for under Item 403.11. Pavement joint adhesive and tack coat shall also be incidental to the item.

Add Section 5.5 to read as follows:

Item 403.01, Stamped Hot Bituminous Pavement shall be paid for at the Contract unit price per square yard, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

SECTION 604 – CATCH BASINS, DROP INLETS AND MANHOLES

Construction Requirements

Add the following sections:

3.10 Where indicated on the plans or as directed by the Engineer, existing pipe inverts shall be utilized as reference to establish proposed catch basin and manhole inverts. The Contractor shall verify existing elevations through field survey and/or test pits.

3.11 New inverts for proposed catch basins and manholes should be submitted to the Engineer for approval before installation.

3.12 The Contractor's attention is specifically directed to the requirement that all catch basins (both existing and proposed) are to be inspected and cleaned by the Contractor on an annual basis throughout the period of the Contract.

3.13 The Contractor shall exercise care when conducting his operations so that the debris does not enter any structures. All structures and pipes shall be kept clean and operable. All costs of debris removals, damages due to back-ups, and cleaning by others due to operations of the Contractor shall be incidental to the various items of work.

3.14 All existing and proposed drainage structures within the limits of the project shall be cleaned of all debris after all paving is completed and prior to the acceptance of the project as complete. A certificate shall be provided by the contractor that the work has been completed.

Basis of Payment

Add Section 5.6 to read as follows:

5.6 Cleaning of all existing and proposed drainage structures will be incidental to the various items of work with no additional compensation.

SECTION 608 – SIDEWALKS

Description

Add Section 1.2 to read as follows:

1.2 The work shall also consist of furnishing and installing a detectable warning surface and accessories on wheelchair ramps at locations shown on the plans, as specified herein, or as ordered including any and all required surface preparation. Detectable warning panels shall be installed at sidewalk ramps where a sidewalk crosses a vehicular way, excluding unsignalized driveway crossings. Detectable warnings shall measure 24 in the direction of travel and extend the full width of the sidewalk ramp and the edge nearest the curb line shall be located 6 to 8 in from the face of curb line.

Materials

Add Section 2.6 to read as follows:

2.6 Detectable Warning Devices:

- 2.6.1 Material. Detectable warning devices shall be gray cast iron conforming to AASHTO M105 and AASHTO M306.
- 2.6.2 Color. Cast iron panels shall have no surface coating, and shall be allowed to transition to their natural patina.
- 2.6.3 Detectable Warning Panel Truncated Dome Geometry:
 - 2.6.3.1 Detectable warning devices shall be in full compliance with ADAAG guidelines (Title 49 DFR Transportation, Part 37.9 Standard for Accessible Transportation Facilities, Appendix A, Section 4.29.2- Detectable Warning on Walking Surfaces).
 - 2.6.3.2 Size and spacing for truncated domes shall be as follows: base diameter of nominal 0.9 in, top diameter of nominal 0.4 in, height of nominal 0.2 in, with a center to center spacing of nominal 2.35 in.
 - 2.6.3.3 The truncated domes shall be arranged in a grid pattern and shall align properly from panel to panel.

Construction Requirements

Add Section 3.2.9 to read as follows:

3.2.9 Detectable Warning Devices:

- 3.2.9.1 The Contractor shall submit manufacturer's descriptive literature for materials specified in accordance with 105.02.
- 3.2.9.2 Transport, storage, and handling of products shall be in accordance with manufacturer's instructions.
- 3.2.9.3 Install detectable warning devices and any anchoring hardware in accordance with manufacturer's instructions. Panels shall be set into a bed of 4 in wet unreinforced concrete.
- 3.2.9.4 Use a combination of available panel widths as manufactured to cover the full sidewalk ramp width to the extent practicable. Field cutting of panels is not permitted.
- 3.2.9.5 Care shall be taken to ensure the safety of pedestrians when sidewalks must remain in service during construction.

Method of Measurement

Add Section 4.3 to read as follows:

- 4.3** Detectable Warning Devices shall be measured by each complete in place constructed at locations shown on the plans or as ordered by the Engineer.

Basis of Payment

Add Section 5.4 to read as follows:

- 5.4** Detectable Warning Devices shall be at the contract unit bid price per each and shall include full compensation for material, equipment and labor to complete the installation.

Pay Items and Units (ENGLISH):

608.54 Detectable Warning Devices, Cast Iron

SECTION 615 – TRAFFIC SIGNS

Method of Measurement

Replace Section 4.4 with the following section:

- 4.4 Removing traffic sign will be measured as a unit, regardless of size or type. A unit will include all footings to a minimum of 1 foot below finished grade, posts, mounting hardware and all signs on the same post.

Basis of Payment

Replace Section 5.2.1 with the following section:

- 5.2.1 Removing traffic sign will be paid for at the Contract unit price per each unit.

SECTION 616 -- TRAFFIC SIGNALS

Description

Section 1.1, revise in its entirety to read as follows:

The work to be done related to traffic signal installation consists of furnishing and installing new traffic signals at two (2) intersections on Amherst Street (Route 101A) at Charron Avenue and at the proposed Site Drive, complete with vehicle detectors, signal posts, signal heads, mast arm assemblies, foundations, pull boxes, conduit and all necessary fittings, wire and cable, an electrical service connection and all other equipment, materials and incidental costs necessary to furnish, install and program a complete and functioning traffic control system as specified and as shown in the contract documents.

The Contractor shall note that the City of Nashua specifies Eagle Traffic Control Systems (ETCS) products in its traffic control signal systems. Traffic signal equipment specified for this project shall be as manufactured by ETCS or compatible with ETCS equipment.

The work shall also include the removal, transporting and stacking at the Nashua Department of Public Works maintenance yard of certain individual parts of the existing traffic signal equipment. The items to be removed and stacked shall consist of the existing traffic signal controller and cabinet (complete), the signal heads and lenses (complete), signal posts and bases, and aluminum mast arms, poles and bases. The work shall also include the excavation and backfilling with compacted gravel of the holes resulting from the excavation of the foundations and the replacement, in kind, of any surface material disturbed.

All work under these items shall conform to the relevant provisions of Section 616 of the 2010 NHDOT Standard Specifications, the 2009 Manual on Uniform Traffic Control Devices (MUTCD), the 2010 Standard Plans for Road Construction and the following technical provisions.

Materials

Add Section 2.1.3 to read as follows:

2.1.3 List of Major Materials:

1 - NEMA Traffic Signal Controller & Cabinet TS2 Type 1 with Foundation and Concrete Pad.

Location: Route 101A – STA. 13+84.0, 61.0' RT

1 - Service Connection (Overhead from relocated utility pole).

1 - Electric Service Meter Pedestal.

Location: Route 101A – STA. 13+95.0, 63.5' RT

7 - Unidirectional Single Channel Optical Detector (Receiver).

2 - Preemption 4-Channel Phase Selector.

3 - Preemption Confirmation Strobe (Clear).

4 - 360° Video Detection Camera, Including 2 Spares.

19 - One-way, three-section, 12-inch aluminum signal heads with LED modules type, mounted on mast arms, with 5-inch louvered backplate.

1 - Two-way, five-section, 12-inch aluminum signal heads with LED modules type, mounted on mast arms, with 5-inch louvered backplate.

6 - Galvanized steel signal posts, with pedestal and foundation. The signal post shall be 8 ft.

Locations: Charron Avenue – STA. 50+45.0, 39.5' RT
Charron Avenue – STA. 50+54.5, 26.0' RT
Route 101A – STA. 10+47.2, 35.7' LT
Route 101A – STA. 10+53.3, 35.7' LT
Route 101A – STA. 15+10.2, 38.5' LT
Route 101A – STA. 15+35.0, 63.0' RT

12 - Pedestrian Housing Graphic LED with Countdown Timer.

12 - Audible & Vibro-Tactile Pedestrian Push Button Integrated R10-3e Sign & Saddle with LED Confirmation Light.

Galvanized steel mast arms/poles will be supplied by the City of Nashua to the Contractor. The Contractor shall be responsible for coordinating the delivery of this equipment, the construction of all bases and foundations, the installation of the mast arms/poles on the foundations, and all other work to complete the installation:

1 - Galvanized steel 15-foot mast arm assembly.

Location: Route 101A – STA. 14+63.0, 48.0' RT

2 - Galvanized steel 20-foot mast arm assembly.

Locations: Route 101A – STA. 11+27.0, 38.0' LT
Route 101A – STA. 15+18.4, 29.5' LT

1 – Galvanized steel 25-foot mast arm assembly.

Location: Charron Avenue – STA. 50+77.5, 21.5' RT

2 - Galvanized steel 45-foot mast arm assembly.

Locations: Charron Avenue – STA. 50+44.0, 55.5' LT
Route 101A – STA. 10+66.0, 44.0' LT

1 - Galvanized steel 45-foot mast arm assembly.

Location: Route 101A – STA. 15+44.5, 56.0' RT

1 - Galvanized steel 50-foot mast arm assembly with luminaire.

Location: Route 101A – STA. 14+29.5, 45.5' LT

The City of Nashua will be ordering all Mast Arm assemblies ahead of the project to expedite the process. The Contractor will not include the Mast Arm Assemblies in the Lump Sum Bid Price for this item. The Contractor will still be responsible for the foundations and any installations related to the Traffic Signals. The cost for the installations should be included in the Lump Sum Bid Price for this item.

Section 2.2, Traffic Signal Heads, amend to include the following:

Signal heads shall be rigid mounted on mast arms, with the bottom of all signals at the same height. All traffic signal lenses shall be 12" in diameter unless otherwise noted on the plans.

Signal heads shall be made of aluminum and conform to Materials Section 2.2 of Section 616 of the NHDOT Standard Specifications.

Section 2.4.1.2, revise in its entirety to read as follows:

2.4.1.2 Concrete foundation shall be concrete Class B meeting the requirements of 520. Reinforcing steel shall meet the requirements of 544. Based on the geotechnical report provided in these Contract Documents, all of the mast arm footings shall be spread footings, except for the footings on the northwest and southwest corner of the Amherst Street/Site Driveway intersection, which may be cored pier footings.

Section 2.5.2.12, revise in its entirety to read as follows:

2.5.2.12 Video Detection

1. Description

Install a Video Imaging Vehicle Detection System (VIVDS) that monitors vehicles on a roadway via processing of video images and provides detector outputs to a traffic controller or similar device.

A VIVDS configuration for a single intersection will consist of either 1 or 2 fixed focal length omnidirectional view cameras and the VIVDS Processor.

The system is composed of these principal items: the camera(s), the field communications link consisting of a single CAT5e cable between each camera and the VIVDS Processor, and the VIVDS Processor along with a PC, video monitor or associated equipment required to setup the VIVDS Processor and software to communicate to the VIVDS Processor.

The VIVDS Processor must be either NEMA TS2 Type 1 or Type 2. Type 2 must have RS 485 SDLC. The VIVDS Processor must have at least four (4) processing cores of 2.8 GHz or greater, a minimum of 3 GB random access memory (RAM), and at least 32 GB of onboard storage.

2. Definitions

A. VIVDS Processor: The electronic unit that converts the video image provided by the cameras generates vehicle detections for the defined zones and collects vehicular data as specified.

B. Central Control: A remotely located control center, which communicates with the VIVDS Processor. The VIVDS operator at the central control has the ability to monitor the operation and modify detector placement and configuration

parameters. The equipment that constitutes central control is comprised of a workstation microcomputer along with the associated peripherals as described in this special specification.

- C. Field Setup Computer: A portable microcomputer used to set up and monitor the operation of the VIVDS Processor. If required to interface with VIVDS processor, the field setup computer with the associated peripherals described in this special specification and a video monitor, also described in this special specification, must be supplied as part of the VIVDS.
- D. Field Communications Link: The communications connection between the camera(s) and the VIVDS Processor. This link will consist of one CAT5e cable for each omnidirectional camera.
- E. Remote Communication Link: The communications connection between the VIVDS Processor and the Central Control.
- F. Camera Assembly: The complete camera or optical device assembly used to collect the visual image. The camera assembly consists of a CMOS camera, environmental enclosure, temperature control mechanism, and all necessary mounting hardware.
- G. Occlusion: The phenomenon when vehicle passes through the detection zone but the view from the sensor is obstructed by another vehicle. This type of occlusion results in the vehicle not being detected by the sensor. When a vehicle in one lane passes through the detection zone of an adjacent lane. The type of occlusion can result in the same vehicle being counted in more than one lane.
- H. Detection Zone: The detection zone is an area selected through the VIVDS Processor that when occupied by a vehicle, sends a vehicle detection to the traffic controller or freeway management system.
- I. Detection Accuracy: The measure of the basic operation of a detection system (shows detection when a vehicle is in the detection zone and shows no detection when there is not a vehicle in the detection zone).
- J. Live Video: Video being viewed or processed at 5 to 10 frames per second.
- K. Lux: The measure of light intensity at which a camera may operate. A unit of illumination equal to one lumen per square meter or to the illumination of a surface uniformly one meter distant from a point source of one candle.

3. Functional Capabilities

The system software must be able to detect either approaching or departing vehicle in multiple traffic lanes. A minimum of 24 detector outputs per VIVDS Processor. Each

zone and output must be user definable through interactive graphics by drawing arbitrarily shaped polygons using the Field Setup Computer or Central Control. The user must be able to redefine previously defined detection zones.

The VIVDS Processor must provide real time vehicle detection within 500 milliseconds (ms) of vehicle arrival.

The system must be able to detect the presence of vehicles in up to 64 detection zones per camera.

Detection zones must be provided that are sensitive to the direction of vehicle travel. The direction to be detected by each detection zone must be user programmable.

The VIVDS Processor unit must compensate for minor camera movement (up to 2% of the field of view at 400 feet) without falsely detecting vehicles. The camera movement must be measured on the unprocessed video input to the VIVDS Processor.

The camera must operate while directly connected to VIVDS Processor Unit.

Once the detector configuration has been downloaded or saved into the VIVDS processor, the video detection system must operate with the monitoring equipment (monitor and/or laptop) disconnected or on-line.

When the monitoring equipment is directly connected to the VIVDS Processor, it must be possible to view vehicle detections in real time as they occur on the field setup computer's color VGA display or the video monitor.

The VIVDS Processor must support 1 or 2 omnidirectional view cameras. If equipped with 1 omnidirectional view camera, the VIVDS Processor must also be capable of simultaneously supporting up to four (4) more traditional view cameras for special needs such as advance detection or underpass detection.

4. Vehicle Detection

- A. Detection Zone Placement. The video detection system must provide flexible detection zone placement anywhere within the combined field of the image sensors. Preferred presence detector configurations shall be arbitrarily shaped polygons, including simple boxes, drawn across lanes of traffic or placed in line with lanes of traffic. A single detector must be able to replace one or more conventional detector loops.
- B. Detection Zone Programming. Placement of detection zones must be by means of graphical interface using the video image of the roadway. The monitor must show images of the detection zones superimposed on the video image of traffic while the VIVDS Processor is running. The displayed zones, when operating, must be able to be displayed outlined or filled, with a visible change indicating detection.

The detection zones must be created by using the mouse or keypad to draw detection zones on the monitor. The detection zones must be capable of being sized and shaped to provide optimal road coverage and detection. It must be possible to upload detector configurations to the VIVDS Processor and to retrieve the detector configuration that is currently running in the VIVDS processor.

The mouse or keypad may be used to edit previously defined detector configurations so as to fine tune the detection zone placement size and shape. Once a detection configuration has been created, the system must provide a graphic display of the new configuration on its monitor. While this fine-tuning is being done, the detection must continue to operate from the detector configuration that is currently called.

When a vehicle occupies a detection zone, the detection zone on the live video must indicate the presence of a vehicle, thereby verifying proper operation of the detection system. With the absence of video, the VIVDS Processor must have a display that will indicate proper operation of the detection zones.

Detection zones must be provided that are sensitive to the direction of vehicle travel. The direction to be created by each detection zone must be user programmable. The vehicle detection zone should not activate if a vehicle traveling any direction other than the one specified for detection occupies the detection zone. Cross-street and wrong way traffic should not cause a detection.

Detection zones must have the option for the user to define that calls can be made with a side entrance (90° or less angled entrance).

- C. Design Field of View. The video detection system must reliably detect vehicle presence in the design field of view. The design field of view must be defined as the sensor view when the image sensor is mounted 30 feet or higher above the roadway, when the camera is adjacent (within 15 feet) to the edge of the nearest vehicle travel lane, and when the length of the detection area is not greater than 5 times the mounting height of the image sensor. Within this design field of view, the VIVDS Processor unit must be capable of setting up a single detection zone for point detection (equivalent to the operation of a 6'x6' inductive loop). A single camera, placed at the proper mounting height, must be able to monitor up to and including 5 traffic lanes simultaneously. A single omnidirectional camera, placed at the proper mounting height, must be able to monitor detection zones in at least intersection approaches.
- D. Detection Performance. Detection accuracy of the video system must comparable to properly operating inductive loops. Detection accuracy must include the presence of any vehicle in the defined detection zone regardless of the lane, which the vehicle is occupying. Occlusion produced by vehicles in the

same or adjacent lanes must not be considered a failure of the VIVDS Processor, but a limitation of the camera placement. Detection accuracy (minimum of 95%) must be enforced for the entire design field of view on a lane by lane and on a time period basis. When specified in the plans, furnish up to 24 continuous hours of recorded video of all installed intersection cameras within the 30 day test period for verification of proper camera placement, field of view, detection zone placement, processor setup and operation. The video from each camera must show vehicle detections for all zones.

- E. Equipment failure, either camera or VIVDS Processor, must result in constant vehicle detection on affected detection zones.

5. VIVDS Processor

- A. Cabinet Mounting – The VIVDS Processor is shelf mountable.
- B. Environment Requirements – The VIVDS Processor must be designed to operate reliably in the adverse environment found in typical roadside traffic cabinet. It must meet the environmental requirements set forth by the latest NEMA (National Electrical Manufacturers Association) TS1 and TS2 standards as well as the environmental requirements for Type 170, Type 179 and 2070 controllers. Operating temperature must be from -30° F to +165° F at 0% to 95% relative humidity, non condensing.
- C. Electrical – The VIVDS Processor must have a modular electrical design. The VIVDS Processor must operate within a range of 89 to 135 VAC, 60 Hz single phase. Power to the VIVDS Processor must be from the transient protected side of the AC power distribution system in the traffic control cabinet in which the VIVDS Processor is installed.

Communications to the field setup computer must be through an Ethernet port. This port must be able to download the real time detection information needed to show detector actuations.

The VIVDS Processor must have an Ethernet connection on the front of the unit for the connection to the 1st camera. If a second camera is installed at the intersection, the camera will connect with the VIVDS Processor through a connector mounted on the side of the Processor.

The unit must be equipped with a single VGA video output. This output must be capable of displaying the operation and detections of the VIVDS Processor.

The change log for all software upgrades and/or changes must be presented on a readily assessable internet site with unencumbered public access.

The unit software and the supervisor software must include diagnostic software to allow testing the VIVDS functions. This must include the capability to set and

clear individual detector outputs and display of the status of inputs to enable setup and troubleshooting in the field.

6. Camera Assembly

- A. Camera. The video detection system must use high resolution, color image sensors as the video source for real time vehicle detection. The camera must be approved for use with the VIVDS Processor unit by the supplier of the VIVDS. As minimum, each camera must provide the following capabilities:
1. Images must be produced with a CMOS sensing element with horizontal resolution of at least 2580 lines and vertical resolution of at least 1920 lines. Images must be output in digital format as MJPEG image.
 2. Useable video and resolvable features in the video image must be produced when those features have luminance levels as low as 1.0 Lux for color, for night use.
 3. Useable video and resolvable features in the video image must be produced when those features have luminance levels as high as 10,000 Lux during the day.
 4. The camera must include an electronic shutter control based upon average scene luminance and must be equipped with fixed field of view and fixed focus lens which does not require opening the camera enclosure. The fixed focus lens must be always in focus without any required end-user adjustments.
- B. Camera and Lens Assembly. The camera and lens assembly must be housed in an environmental enclosure that provides the following capabilities:
1. The enclosure must be waterproof and dust tight to the latest NEMA 4 specifications.
 2. The enclosure must allow the camera to operate satisfactorily over an ambient temperature range from -30° F to +165° F while exposed to precipitation as well direct sunlight.
 3. The enclosure must include a provision for connection of the CAT5e cable. Input power to the environmental enclosure must be included in the Ethernet interface.
 4. A thermostatically controlled heater must be at the front of the enclosure to prevent the formation of ice and condensation. The heater must not interfere with the operation of the camera electronics, and it must not cause interference with the video signal.

5. The enclosure must be light colored or unfinished and must be designed to minimize solar heating. Any plastics used in the enclosure must include ultra violet inhibitors.
6. The total weight of the image sensor in the environmental enclosure must be less than ten (10) pounds.

Use waterproof, quick disconnect connectors to the camera for the CAT5e connection.

A camera interface panel capable of being mounted to sidewalks of a controller cabinet must be provided for protection of the VIVDS Processor, camera CAT5e connection. The panel must consist of, as a minimum, 2 CAT5e cable surge protection connections.

When the connection between the camera and the VIVDS Processor is CAT5e cable, the cable used must be suited for outdoor installation.

Camera mounting hardware must allow for vertical or horizontal mounting to the camera enclosure.

7. Field Communication Link

The field communications link must be a two way communications connection from the camera to the VIVDS Processor. The primary communications link media must burial grade CAT5e cable.

In locations where the plans indicate CAT5e cable is required as the primary communications link, this cable must be burial grade as well as suitable for above ground applications.

All connection cables must be continuous from the equipment cabinet to the camera connector.

Install lightning and transient surge suppression devices on the processor side of the field communications link to protect the peripheral devices. The suppression devices must be all solid state. The devices must present high impedance to, and must not interfere with, the communications lines during normal operation.

The suppression devices must not allow to peak voltage on any line to exceed 300% of the normal operating peak voltage at any time. The response time of the devices must not exceed 5 nanoseconds.

8. VIVDS Set-up System

The minimum VIVDS set-up system, as needed for detector setup and viewing of vehicle detections, must consist of a field setup computer and Windows based interface software (if required) or a video monitor with interface software built-

in to the VIVDS Processor. Live video (5 frames per second) must be available on the field setup computer to determine proper operation of detectors. The field set-up computer as a minimum must have a network connection.

If a field setup computer is required for system set-up, it must be supplied by the supplier of the VIVDS Processor.

The field setup computer must include all necessary cabling and a Windows based program to interface with the VIVDS Processor. This software must provide an easy to use graphical user interface and support all models/versions of the supplied VIVDS.

Live video with the detection overlaid is required for field verification of the system.

9. Operation from Central Control

The central control must transmit and receive all information needed for detector setup, monitor the vehicle detection, view the vehicle traffic flow and interrogate all required stored data. The remote communications link between the VIVDS Processor and central control may be dial-up (telephone or ISDN lines) or dedicated twisted wire pair communications cable which may be accompanied with coaxial cable or fiber-optic cable, as shown on the plans. Communications with the central control must not interfere with the on-street detection of the VIVDS Processor.

10. Installation and Training

The supplier of the video detection system must supervise the installation and testing of the video and computer equipment.

Instruction personnel are required to be certified by the equipment manufacturer. The User's Guide is not an adequate substitute for practical, classroom training and formal certification by an approved agency.

Formal levels of factory authorized training are required for installers, contractors and system operators. All training must be certified by the manufacturer.

11. Warranty, Maintenance and Support

The video detection system must be warranted to be free of defects in material and workmanship for a period of three (3) years from the date of shipment from the supplier's facility. During the warranty period, the supplier must repair with new or refurbished materials, or replace at no charge, any product containing a warranty defect provided the product is returned FOB to the supplier's factory or authorized repair site. Return product repair or replaced under warranty by

the supplier with transportation prepaid. This warranty does not apply to products damaged by accident, improperly operated, abused, serviced by unauthorized personnel or unauthorized modification.

Ongoing software support by the supplier must include updates of the VIVDS Processor and supervisor software (if a field setup computer is required for set up). Provide these updates free of charge during the warranty period.

The supplier must maintain a program for technical support and software updates following expiration of the warranty period.

Construction Requirements

Add the following subsections to Section 3.1 to read as follows:

3.1.3 No work shall be commenced by the Contractor until approval of the shop drawings and the manufacturer's data has been received in writing from the Engineer. Approval of these drawings shall be general in character and shall not relieve the Contractor from the responsibility of, or the necessity of, furnishing materials and workmanship conforming to the plans and specifications.

3.1.4 The Contractor shall deliver to the Engineer a certificate of compliance with the manufacturer for all materials purchased from the manufacturer.

3.1.5 The Contractor shall obtain an electrical permit from the City of Nashua and/or the NHDOT prior to construction. The Contractor shall notify the City of Nashua and the NHDOT 15 days prior to start of work.

3.1.6 Any Electrical Contractor performing work on roadways or signals must be approved to do work from the NHDOT.

3.1.7 The Contractor shall be responsible for signal operation and maintenance once alterations to the existing signals, excavation or other work within 75 feet of the stop bar at any leg has begun. At this point in time the Contractor shall notify the City with names and phone numbers of persons to be contacted in case of a malfunction. The Contact person must be available 24 hours a day, seven days a week. The Contractor shall also keep a signal log in the cabinet to track all maintenance work they complete on the signal system. This log shall be placed within a plastic cover and shall at least include the description of the trouble call, corrective action taken, date, time, and personnel who completed the work.

Add Section 3.17 to read as follows:

3.17.1 Each programmable local hardware component installed by the contractor (i.e. loop detector amplifier, emergency vehicle preemption phase selector) shall be initially programmed by the Contractor based on information contained on the plans. **Note: Three bound sets of hard copy programming per device shall be supplied to the City of Nashua by the CONTRACTOR.**

3.17.2 The CONTRACTOR shall supply an 8½"x11" laminated copy of the traffic signal design plan and sequence and timing chart to be left in the cabinet documentation envelope mounted on the inside of the cabinet door.

3.17.3 Drawings, manufacturer's specifications, and applicable catalog cuts for all materials and components shall be submitted in accordance with Section 105.02 of NHDOT Standard Specifications within 21 days after award of the contract. An additional set of final approved documents, to total 6 sets, shall be supplied to the Engineer.

Add Section 3.18 to read as follows:

3.18 The Contractor shall be responsible for the dismantling, removing and stacking on boards at the Nashua Department of Public Works existing traffic signal components, including, but not necessarily limited to, the existing signal heads, mast arms and poles, foundations, existing electrical service, and controller cabinet. All other components of the existing traffic signal shall be removed and disposed of by the Contractor, including but not necessarily be limited to: the removal and disposal of the signal foundations and electrical system; removing and disposing or abandoning existing hand holes and signal conduit; disconnecting the power source; removing the riser on the utility pole. Old cable and all unusable material shall be disposed of by the Contractor.

Basis of Payment

Add Section 5.4 to read as follows:

5.4 Payment for dismantling, loading, transporting, and stacking of the existing traffic control signals as designated above, the excavation and disposal of the existing foundations, the supplying and replacing of compacted gravel backfill and restoration or replacement, in kind, of the area where foundations and posts are removed, shall be included in the unit price for Item 616.101.

SECTION 619 – MAINTENANCE OF TRAFFIC

Construction Requirements

Add the following sections:

3.4 Maintenance and Protection of Traffic During Nighttime Operations.

Nighttime operations consist of work specifically scheduled to occur after sunset and before sunrise. ***This work shall be at the Contractor's option to facilitate construction, however, it shall be in no way construed that the Contractor is being directed to perform certain operations at night. The option to perform certain operations at night is being provided for the Contractor's convenience, and no additional compensation shall be provided, but shall be included in the various items of work.***

In addition to the requirements of basic maintenance and protection of traffic, additional requirements for maintenance and protection of traffic during nighttime operations shall be as follows:

- 3.4.1 Traffic Control Supervision. The Contractor shall provide a full-time traffic control supervisor for nighttime operations with adequate training, experience, and authority to implement and maintain all traffic control operations. The traffic control supervisor must be approved by the Engineer based on a written request by the Contractor detailing the training and experience of the traffic control supervisor. The traffic control supervisor shall be assisted by a full-time traffic control crew equipped with a suitable vehicle or vehicles and a mobile communications system consisting of radios or cellular phones. The duties and responsibilities of the traffic control supervisor shall be included in the plan of nighttime operations. During setup and removal of lane closures and other traffic control setups, the traffic control supervisor and crew shall be assisted by additional workers as necessary.
- 3.4.2 Plan of Nighttime Operations. Fifteen days prior to the start of night work, the contractor shall submit a written plan for nighttime operations to the Engineer. The plan shall detail all aspects of the traffic control setup; lighting plans; the functions, responsibilities and identities of the traffic control supervisor and crew; and other details as necessary. It shall include a contingency plan identifying foreseeable problems and emergencies that may arise, and the approach that will be used to address them. This plan shall be revised and updated by the contractor as necessary during the progress of the work to accommodate actual conditions on the project.
- 3.4.3 Project Site Patrol. During nighttime operations, the traffic control supervisor and crew shall constantly patrol the contract area to ensure that conditions on the site are adequate for public safety and convenience at all times, to ensure worker safety from intrusions into the worksite, and to ensure that the provisions for maintenance and protection of traffic in the contract documents and in the plan for nighttime operations are adhered to. The traffic control crew shall maintain and adjust signs, channelizing devices, area lighting and other traffic control devices as necessary.
- 3.4.4 Waiver of Requirements. When the work does not require closure of an active lane, roadway, or ramp and when no construction operations occur adjacent to active traffic

lanes; the requirements for a full-time traffic control supervisor and full-time project site patrol shall be waived. However, the contractor shall provide a competent supervisor and workers to install, maintain, adjust, and remove traffic control devices as required by the work operations. The details of the supervision and site patrol to be provided under this waiver shall be included in the plan of nighttime operations.

3.4.5 Trained Flaggers. All flaggers used in nighttime operations shall be formally trained in flagging operations. (See Section 618.3.2.1 of the NHDOT Standard Specifications for Road and Bridge Construction).

3.4.6 Emergency Flares. A supply of emergency flares shall be maintained by the Contractor for use in the event of unanticipated situations such as traffic accidents, equipment breakdowns, failure of lighting equipment, etc.

3.4.7 In addition to the requirements of basic maintenance and protection of traffic, additional requirements for maintenance and protection of traffic during nighttime operations shall be as follows:

3.4.7.1 Worker Protection. All workers involved in nighttime operations shall, at all times, wear reflective hard hats and vests or high visibility apparel as described below:

1. Hard hats shall be equipped with a minimum of 12 square inches of reflective tape on all four sides (Le. 3 square inches per side).
2. Vests and high visibility apparel shall be orange, yellow, or strong yellow-green in color or fluorescent versions of these colors (flaggers shall wear orange) and shall include retroreflective material, white or silver in color, visible for a minimum of 1000 feet in all directions under headlight illumination.
3. Retroreflective clothing shall be designed to clearly identify the wearer as a person and shall be visible through a full range of body motions.
4. Retroreflective clothing and vests shall be closed front and rear. Open front vests shall not be permitted.
5. All retroreflective clothing and vests shall be in clean condition or replaced as necessary to maintain visibility and reflectivity.

These requirements apply to truck drivers and equipment operators when out of an enclosed cab.

3.4.7.2 Vehicle Protection. All vehicles and equipment in the traffic control zone shall be equipped with rotating amber beacons which *shall* be visible from all directions for a minimum of 1000 feet during daylight. Beacons shall be mounted in a manner which does not cause glare for the driver or operator.

Vehicles operating or parked on the pavement of a closed roadway or travel lane shall display 4-way flashers or beacons at all times.

Rollers shall display a 2-inch band of reflective tape on the front and rear (100 square inches per end minimum).

All trucks shall display a minimum of 100 square inches of reflective tape on the rear.

Haul trucks shall display a 2 foot by 4 foot orange reflective sign with the legend "Construction Vehicle - Do Not Follow" in black lettering on the tailgate. All construction equipment when moving at a speed below the operating speed of traffic in an open travel lane or on a shoulder adjacent to an open travel lane shall be equipped with an amber rotating beacon and shall be followed by a chase vehicle equipped with an amber rotating beacon and 4-way flashers. Vehicles (except for rollers) shall travel facing in the same direction as adjacent traffic in order to avoid glare and confusion to drivers.

- 3.4.7.3 Signs, Delineation and Guiding Devices. All signs, delineators and guiding devices for nighttime operations shall be kept clean and visible with good reflectivity.

Type III construction barricades shall be used whenever an entire roadway or ramp is closed to traffic.

Plastic drums or 12" by 24" vertical panels shall be used for channelizing and delineating lane closures. Oversize (36") cones may be used on tangent runs beyond the completion of the lane closure tapers.

Spacing shall be in accordance with the following:

Estimated Operating Speed (mph)	Maximum Spacing (feet)
20	20
30	30
40	40

Delineation at gores or intersections shall be spaced at intervals equal to one-half of the above table values and shall consist of plastic drums or 12" by 24" vertical panels except that every other device may be an oversize (36") cone at the Contractor's option.

When traffic will be traveling adjacent to closed travel lanes, two plastic drums, two 12" by 24" vertical panels or two oversize (36") cones shall be placed transversely in each closed lane at 750 foot maximum intervals (unless a lesser spacing is shown on the plans) except where it would interfere with paving, rolling or other ongoing operations. A Type III construction barricade may be substituted at the Contractor's option. No additional payment for Type III construction barricades will be made when used for this purpose.

3.5 Lighting for Nighttime Operations

3.5.1 This work shall consist of furnishing, installing, operating, maintaining, moving and removing portable light towers and equipment-mounted lighting fixtures for nighttime construction operations, for the duration of nighttime work on the contract. Nighttime operation consist of work specifically scheduled to occur after sunset and before sunrise.

3.5.2 Construction Details

3.5.2.1 General- Before nighttime operations may begin; (1) an acceptable lighting plan must be submitted and (2) all required lighting equipment and/or materials must be ready for operation.

3.5.2.2 Lighting Plan - Fifteen days prior to the start of night work, the Contractor shall submit a lighting plan to the Engineer. The lighting plan shall include the following:

- Layout plan showing location of light towers, including both typical spacing and lateral placement.
- Description of light towers to be used.
- Description of electrical power source.
- Attachment and mounting details for lights to be attached to equipment.
- Specific technical details on all lighting fixtures to be provided, including power rating and photometric charts.
- Details on any hoods, louvers, shields, or other means to be used to control glare.
- Lighting calculations confirming that the illumination requirements will be met by the layout plan.

The layout plan shall be on 24" x 36") at an appropriate scale to adequately describe the work. It shall clearly show the location of all lights necessary for every aspect of work to be done at night.

In addition to the plan sheets, the Contractor shall submit catalog cuts giving the specific brand names, model numbers and ratings of the lighting equipment. The submittal shall include power ratings and photometric data.

3.5.2.3 Light Levels - Tower-mounted luminaires, whether portable, trailer-mounted, or equipment-mounted, shall be of sufficient wattage and/or quantity to provide an average maintained horizontal illuminance equal to or greater than the following over the work area:

Level I - 5 footcandles
Level II - 10 footcandles
Level III - 20 footcandles

The uniformity of illuminance, defined as the ratio of the average illuminance to the minimum illuminance over the work area, shall not exceed 5: 1.

3.5.2.4 Illuminance Requirements - Lighting shall be adequate to meet the required level of illuminance and uniformity over the entire area of operation as follows:

Level I - All areas of general construction operations including excavation; cleaning and sweeping; landscaping; planting and seeding. Level I shall also be provided at the area of lane and/or road closures continuously throughout the period of closure, including the setup and removal of the closures.

Level II - Asphalt paving, milling, and concrete placement and/or removal.

Level III- Pavement or structural crack filling, joint repair, pavement patching and repairs, installation of signal equipment or other electrical/mechanical equipment, and other tasks involving fine details or intricate parts and equipment.

For paving and milling operations, including bridge decks, Level II illuminance shall be provided 50 ft. ahead of and 100 ft. behind the paving or milling machine. In addition, Level I illuminance shall be provided a minimum of 400 ft. ahead and 800 ft. behind the paving or milling machine, or for the entire area of concrete placement or pavement work if less than this distance. This area shall be extended as necessary to incorporate all vehicle and equipment operations associated with the paving operation. The only exception to the requirement for Level I illumination throughout the area of construction operations is that finish rollers can work beyond the area of Level I illumination using floodlights mounted on the roller. Construction operations shall be deemed to include all work operations *by* contractor's personnel, including layout and measurement of the actual work.

3.5.2.5 Equipment - All lighting equipment will be furnished as required and retained by the Contractor after the work is completed. Material and/or equipment shall be in good operating condition and in compliance with applicable safety and design codes.

3.5.2.6 Lighting Fixtures - Lighting fixtures shall consist of portable ground-mounted or trailer-mounted light towers; light towers affixed to paving machines, finishing machines, and milling machines; and floodlights mounted on construction equipment. Flood lights mounted on construction equipment shall consist of a minimum of two 500-watt flood lights facing in each direction to provide a minimum of 1 footcandle of horizontal illuminance measured 60 feet in front of and behind the equipment. Construction equipment that is operating solely in areas illuminated by tower lighting shall not require floodlights.

3.5.2.7 Portable Generators - The contractor shall provide portable generators to furnish adequate AC power to operate all required lighting equipment. Fuel tank

capacity and availability of fuel on-site shall be sufficient to permit uninterrupted operation throughout the planned shift. Adequate switches shall be provided to control the various lights. All wiring shall be weatherproof and installed according to local, State, Federal and OSHA requirements. All power sources shall be equipped with a Ground-Fault Circuit Interrupter to prevent electrical shock.

3.5.2.8 Light Meter - The Contractor shall furnish, for the use of the Engineer, a photometer capable of measuring the level of illuminance. This photometer shall be available to the Engineer for use as necessary to check the adequacy of illumination throughout the nighttime operations.

3.5.2.9 Equipment Mounting - The Contractor shall provide suitable brackets and hardware to mount lighting fixtures and generators on machines and equipment. Mountings shall be designed so that light fixtures can be aimed and positioned as necessary to reduce glare and to provide the required illuminance. Mounting brackets and fixtures shall not interfere with the equipment operator or any overhead structures, and shall provide for secure connection of the fixtures with minimum vibration.

3.5.2.10 Portable and Trailer-Mounted Light Towers - Light towers shall be provided as the primary means of illumination, and shall provide Level I illuminance throughout the work area. They shall be supplemented to the extent necessary by lighting fixtures mounted on construction equipment to provide Level II or Level III illuminance where required. Towers shall be sturdy and free-standing without the aid of guy wires or bracings. Towers shall be capable of being moved as necessary to keep pace with the construction operation. Portable towers and trailers shall be positioned to minimize the risk of being impacted by traffic on the roadway or by construction traffic or equipment.

3.5.2.11 Light Towers on Paving, Milling, and Finishing Machines - If needed to supplement portable and/or trailer mounted light towers, towers shall be affixed to paving, milling, and finishing machines to provide the required level of illuminance for the specified distance in front of and behind the machine. Machine mounted light towers shall not exceed a height of 13 feet above ground. Luminaires shall be aimed and adjusted to provide uniform illumination with a maximum uniformity ratio of 5: 1. The hopper, auger, and screed areas of pavers shall be uniformly illuminated. The operator's controls on all machines shall be uniformly illuminated.

3.5.2.12 Equipment Lights - All construction equipment, including rollers, backhoes, loaders, and other equipment operating in work areas not illuminated to a minimum of Level I illuminance shall be equipped with floodlights as described above. Whether or not floodlights are provided, all construction equipment shall be equipped with conventional vehicle headlights to permit safe movement in non-illuminated areas. Headlights shall not be permitted as the sole means of illumination while working.

3.5.2.13 Glare Control - All lighting provided under this item shall be designed, installed, and operated to avoid glare that interferes with traffic on the roadway or that causes annoyance or discomfort for residences adjoining the roadway. The contractor shall locate, aim, and adjust the lighting fixtures to provide the required level of illuminance and uniformity in the work area without the creation of objectionable glare. The Engineer shall be the sole judge of when glare exceeds acceptable levels, either for traffic or for adjoining residences. The contractor shall provide shields, visors or louvers on luminaires as necessary to reduce objectionable levels of glare. As a minimum, the following requirements shall be met to avoid objectionable glare on roadways open to traffic in either direction:

- Tower-mounted luminaires shall be aimed either generally parallel or perpendicular to the roadway.
- All luminaires shall be aimed such that the center of the beam axis is no greater than 60° above the vertical.
- No luminaires shall be permitted that provide a luminous intensity greater than 20,000 candela at an angle of 72° above the vertical.

3.5.2.14 Existing Roadway Lights- Existing street and highway lighting shall not eliminate the need for the contractor to provide lighting. Consideration may be given to the amount of illumination provided by existing lights in determining the wattage and/or quantity of lights to be provided. Such consideration shall be discussed in the Contractor's lighting plan.

3.5.2.15 Continuous Operation - The Contractor shall provide sufficient fuel, spare lamps, generators, and qualified personnel to ensure that all required lights will operate continuously during nighttime operation. In the event of any failure of the lighting system, the operation shall be discontinued until the required level of illumination is restored.

3.5.2.16 Traffic Control Areas – Level I illuminance shall be provided during the setup of lane closures or road closures installed in conjunction with nighttime construction operation and shall be maintained until the closure is removed. Such lighting shall be required at the actual points of closure, including the lane closure tapers. Lighting shall not be required throughout the entire lane closure, except as required at work areas.

Method of Measurement

Add the following section:

4.4 No separate measurement shall be made for any and all devices as specified under Sections 3.4 and 3.5 as hereinbefore described.

Basis of Payment

Add the following section:

5.2 No separate payment shall be made for any and all devices as specified under Sections 3.4 and 3.5 as hereinbefore described, but all costs associated with nighttime operations shall be incidental to the various items of work to be performed under nighttime conditions.

SECTION 632 – RETROREFLECTIVE PAVEMENT MARKINGS

Construction Requirements

Add the following section:

3.6 Obliteration of Pavement Markings.

- 3.6.1 Pavement marking obliteration shall result in a minimum of pavement scar and shall obliterate all evidence of the existing pavement marking material. Removal may be performed by grinding, sand or water blasting, blackout tape, or other methods approved by the Engineer that do not materially damage the pavement surface.
- 3.6.2 Painting over pavement markings with paint, asphalt mixtures or any other material is prohibited.
- 3.6.3 Removal and disposal of pavement markings including, but not limited to retroreflective paint, retroreflective thermoplastic, preformed retroreflective tape and raised pavement markers shall be the responsibility of the Contractor in accordance with all applicable federal, state, and local regulations.

Method of Measurement

Add the following sections:

- 4.5 Obliterate pavement marking lines of the type specified will be measured by the linear foot to the nearest foot of length of marking, with no adjustment for width.
- 4.6 Obliterate pavement marking symbols or words of the type specified will be measured by the square foot to the nearest 0.01 of a square foot of area, based on established areas as shown on the Standard Sheets (Plans).

Basis of Payment

Add the following sections:

- 5.5 The accepted quantities of obliterate pavement marking lines will be paid for at the contract unit price per linear foot. Payment will not be made for the removal of removable pavement marking tape.
- 5.6 The accepted quantities of obliterate pavement marking symbols or words of the type specified will be paid for at the contract unit price per square foot. Payment will not be made for the removal of removable pavement marking tape.

SECTION 645 – EROSION CONTROL

Description

Add the following section:

1.3 Inlet Protection Device. This work shall consist of furnishing, installing, maintaining and removing temporary siltation sacks on existing and proposed catch basins to prevent silt from entering the structure as described in the project details.

Method of Measurement

Add the following section:

4.9 Silt Sacks shall be measured by each complete assembly unit provided, installed, maintained and removed.

Basis of Payment

Add the following section:

5.6 Payment for Silt Sacks shall be at the contract unit price per unit and shall include full compensation for material, equipment and labor to complete the work.

END OF SPECIFICATION

ATTACHMENTS – SOIL BORING LOGS



MILLER ENGINEERING & TESTING INC.

GEOTECHNICAL / SOIL BORINGS / ENVIRONMENTAL / SOILS / CONCRETE / MASONRY / STEEL / ROOFING / ASPHALT INSPECTION

Mail all correspondence to: 100 SHEFFIELD ROAD · PO BOX 4776 · MANCHESTER, NH 03108-4776 · TELEPHONE (603)668-6016 · Fax (603)668-8641

June 25, 2015

Mr. John Osorio
Greenman-Pedersen, Inc.
181 Ballardvale Street. Suite 202
Wilmington, MA 01887

RE: Geotechnical Engineering Evaluation
Amherst Street/Charron Avenue
Traffic Signals
Nashua, New Hampshire

Project No. 15.134.NH

Dear John:

Miller Engineering & Testing, Inc. (MET) has completed a subsurface exploration program and geotechnical engineering evaluation for proposed traffic signal mast arms on Amherst Street (Route 101A) at the intersections with Charron Avenue, Profile Circle, Turnpike Plaza (driveway) and Jughandle 1W in Nashua, New Hampshire. The specific proposed locations for the traffic signal mast arms are discussed below.

The purpose of the subsurface exploration program, which consisted of the advancement of test borings in proximity to five (5) of the eight (8) proposed mast arm locations, was to characterize subsurface conditions for foundation design. Three (3) of the eight (8) proposed mast arm locations were not accessible without significant alteration of the existing landscaping, and because of overhead power lines. A geotechnical engineer from MET was on-site to provide field monitoring of the test boring operation and to prepare detailed test boring logs. This letter report contains a description of the proposed project, a Subsurface Exploration Location Plan, and our geotechnical engineering evaluation and recommendations. The contents of this report are subject to the limitations presented in Attachment A.

PROJECT DESCRIPTION

MET has reviewed a plan titled "Amherst Street Corridor Improvement Nashua, New Hampshire" prepared by Greenman-Pedersen, Inc. Based upon our review of this plan, eight (8) mast arms are proposed as follows:

South Side of Amherst Street at the Intersection with Charron Avenue:

One (1) traffic signal mast arm will be installed on each side of the intersection. Soil boring B-1 was drilled on the west side of the intersection;

South Side of Amherst Street at the East Intersection with Jughandle 1W:

One (1) traffic signal mast arm will be installed on each side of the intersection. Soil borings B-4 and B-5 were drilled on the west and east sides of the intersection, respectively;

North Side of Amherst Street at the Intersection with Profile Circle:

One (1) traffic signal mast arm will be installed on each side of the intersection. Soil boring B-2 was drilled on the east side of the intersection; and

North Side of Amherst Street at the Intersection with Turnpike Plaza Driveway:

One (1) traffic signal mast arm will be installed on each side of the intersection. Soil boring B-3 was drilled on the west side of the intersection.

Three (3) of the proposed mast arm locations were not accessible due to the existing terrain and/or overhead utilities. These included the east side of the Charron Avenue intersection, the west side of the Profile Circle intersection, and the east side of the Turnpike Plaza Driveway intersection.

Based upon conversations with Greenman-Pedersen, Inc., the project team intends to utilize Type 1 and 2 Foundations, as detailed on Standard Number TS-1, TS-2, and TS-3 of the NHDOT Standard Plans, for support of the traffic signal mast arms.

SUBSURFACE EXPLORATIONS AND CONDITIONS ENCOUNTERED

The subsurface exploration program was completed on June 17, 2015 by a drill crew from MET of Manchester, New Hampshire. The test borings and Standard Penetration Tests (SPT's) were performed in general accordance with ASTM Designation D 1586. The program consisted of advancement of test borings (designated B-1 through B-5) at 5 of the 8 proposed mast arm locations as depicted on Figure 1, the Subsurface Exploration Location Plan. Observations and characterization of split-spoon soil samples collected at the 5 test boring locations indicate that subsurface conditions consist of the following generalized profile from the ground surface downward:

1. Organic Topsoil or Concrete Pavement
2. Granular Fill Layer
3. Urban Fill Layer
4. Old Topsoil Layer
5. Natural Sand Deposits
6. Glacial Till Deposits
7. Auger Refusal

Detailed descriptions of the subsurface conditions are provided on the Test Boring Logs presented as Attachment B. General descriptions of the units encountered are as follows:

Concrete Pavement

Soil boring B-1 was located in the sidewalk at the intersection of Charron Avenue and Amherst Street. Soil boring B-1 was advanced through concrete pavement from the ground surface to a

depth of approximately 6 inches. The concrete is underlain by granular fill. Concrete was not present at any other soil boring locations.

Organic Topsoil Layer

Soil borings B-2, B-3, B-4 and B-5 were drilled in landscaped or grass-covered areas. Approximately 6 inches of organic topsoil was encountered at each of these locations. The topsoil layer consists of very loose, dark brown to black, organic silt with trace amounts of very fine sand and fine gravel, with abundant roots and organic detritus.

Granular Fill Layer

A granular fill layer was encountered at all boring locations. The granular fill ranged in thickness from 1.5 feet at soil boring B-1, to approximately 7.5 feet at soil boring B-3. The granular fill consists of very loose to medium dense, fine to medium sand, with trace amounts of coarse sand, silt and fine gravel material.

Urban Fill Layer

Approximately 2.5 feet of urban fill was encountered at soil boring B-1. The urban fill was found from the 2.0-4.5 ft. depth interval. The fill layer consists of loose, dark brown to black, fine sand and silt with glass, coal, asphalt and red brick fragments, cinders and ash material. The urban fill layer at soil boring B-1 is overlain by granular fill and directly underlain by an old topsoil layer (described below). Urban fill was not encountered at the other soil boring locations.

Old Topsoil Layer

An old topsoil layer was encountered below the urban fill at soil boring B-1. The layer consists of loose, dark brown to black, organic silt with trace amounts of very fine sand. It is approximately 6 inches thick and is underlain by natural sand deposits. The old topsoil layer was not observed at any other boring locations.

The total thickness of the organic topsoil and fill layer ranges between 4.0 to 8.0 feet at the test boring locations.

Naturally Occurring Sand Deposits

Naturally occurring sand deposits were observed at all soil boring locations. The thickness of the sand deposits ranged from approximately 4 feet at soil boring B-2, to at least 16 feet at soil boring B-1. Soil boring B-1 was terminated in the sand deposits so the total thickness was not penetrated. These deposits generally consist of medium dense, fine or fine to medium sand with trace to little amounts of silt and gravel. However, at soil boring B-1 these deposits consisted of fine to medium sand with interbedded coarse sand and fine gravel layers. The interbedded coarse sand and gravel layers observed at B-1 were not observed at any of the other boring locations.

Glacial Till Deposits

Glacial till deposits consisting of dark brown, dense to very dense, fine sand and silt, with trace amounts of medium to coarse sand, gravel and broken rock fragments were observed at soil borings B-4 and B-5. The broken rock fragments observed at B-4 and B-5 consist of highly foliated mica schist. The thickness of the till deposits observed at B-4 and B-5 was at least 7

feet. Both borings were terminated in till that consisted predominantly of broken rock fragments in a matrix of fine sand and silt. The sample collected from the 19.0-21.0 ft. depth interval at soil boring B-3 and the 4.0-6.0 ft. depth interval at B-2 consists of dense to very dense, fine sand, angular gravel and abundant broken rock fragments (highly foliated schist). These samples were interpreted to be glacial till.

Auger Refusal

Auger refusal was encountered at a depth of approximately 10.5 feet below ground surface at soil boring B-2. Auger refusals were not encountered at soil borings B-1, B-3, B-4 and B-5. Abundant rock fragments were observed in the split-spoon soil samples collected from the 9.0-11.0 ft. and 14.0-16.0 ft. depth intervals at soil borings B-4 and B-5. These samples consisted predominantly of angular rock fragments (highly foliated schist) in a matrix of fine sand and silt, with trace medium sand. It is likely that boring B-2 was terminated at or near the top of the bedrock surface.

Abundant angular rock fragments were observed in the split-spoon soil sample collected from the 19.0-21.0 ft. depth interval at soil boring B-3. It is likely that soil borings B-3, B-4 and B-5 were terminated at depths close to the top of the bedrock surface. Auger refusals were not recorded at these boring locations.

The following table summarizes the subsurface conditions encountered:

**APPROXIMATE THICKNESSES (FT.) OF STRATIGRAPHIC UNITS PENETRATED DURING
ADVANCEMENT OF SOIL BORINGS B-1 THROUGH B-5**

STRATIGRAPHIC UNIT	SOIL BORINGS				
	B-1	B-2	B-3	B-4	B-5
Concrete	0.5	-	-	-	-
Topsoil Layer	NO	0.5	0.5	0.5	0.5
Granular Fill Layer	1.5	3.5	7.5	3.5	3.5
Urban Fill Layer	2.5	NO	NO	NO	NO
Old Topsoil Layer	0.5	NO	NO	NO	NO
Natural Sand Deposits	16.0	4.0	11.0	5.0	5.0
Glacial Till Deposits	NO	±2.0	±2.0	±7.0	±7.0
Auger Refusal	NO	10.5	NO	NO	NO

Groundwater Conditions

Groundwater was observed at soil borings B-1, B-3, B-4 and B-5. It was not observed at soil boring B-2. The depth to groundwater was estimated by examining the split-spoon soil samples (i.e. looking for groundwater-saturated conditions in the samples), and by measuring the depth to water inside the augers upon completion of the soil boring. Measurements were made with and electric water tape and/or with a weighted nylon tape. Water depths estimated from observing the split-spoon samples ranged from 9.0-10.5 ft. below ground surface. Water depths measured upon completion ranged from 5.6 feet below ground surface at B-5, to 12.0 feet below ground surface at soil borings B-1 and B-3.

Long-term, stabilized groundwater measurements were not made in the borings. Fluctuations in groundwater levels should be anticipated due to variations in precipitation, snowmelt, site development, and other environmental conditions. Groundwater levels at other times, therefore, could fluctuate several feet during the annual hydrologic cycle.

A summary of groundwater observation observed on June 17, 2015 is summarized below:

SUMMARY OF GROUNDWATER OBSERVATIONS

Boring Identification	Depth of Groundwater-Saturated Conditions Observed in Split-Spoon Samples During Drilling (ft.)	Groundwater Depth Measurement Upon Completion of Soil Boring (ft.)
B-1	10.5	12.0
B-2	Not Observed	Not Observed
B-3	9.0	9.6
B-4	9.0	12.0
B-5	9.0	5.6

GEOTECHNICAL ENGINEERING EVALUATION AND RECOMMENDATIONS

The organic topsoil and very loose to loose fill layer are inadequate for support of the signal mast arm foundations. The thickness, composition, and relative density of the fill layer were somewhat variable at the exploration locations. In fact, the fill layer encountered at all test boring locations, except B-4 and B-5 (South Side of Amherst Street at the East Intersection with Jughandle 1W), encountered unsuitable fill layers. As mentioned previously, three (3) proposed mast arm locations were inaccessible for the test boring rig.

Based upon results of the subsurface exploration program, two (2) of the traffic signal mast arms (i.e. those located at the South Side of Amherst Street at the East Intersection with Jughandle 1W) may be supported by drilled piers consisting of reinforced concrete, as detailed on Sheet TS-3 of the NHDOT Standard Plans. According to Note 1, Sheet No. TS-3 of the NHDOT Standard Plans, the maximum design soil pressure is 1.5 tons per square foot (tsf) both horizontally and vertically for a Type 2 Foundation.

The mast arms at the other three (3) traffic signal locations that were explored should consist of reinforced concrete spread footing type foundations, as detailed on Sheets TS-1 and TS-2 of the NHDOT Standard Plans.

The engineering properties of the fill layer encountered at Test Borings B-4 and B-5 indicate that the sand and gravel fill layer has medium dense relative density; and therefore, is adequate for support of the drilled pier foundations. Thus, the fill at these locations should not be disturbed during the pier installation process.

As detailed in Note 1 on Sheet TS-3 of the NHDOT Standard Plans, the soils surrounding the foundation also must be capable of supporting a stress of 1.5 tsf in the horizontal direction. The natural medium dense Sand deposits encountered at test boring locations B-4 and B-5 are considered adequate to support a horizontal stress of 1.5 tsf. Conversely, the existing loose fill

materials at test boring B-1, B-2, and B-3 are not considered capable of supporting a horizontal stress of 1.5 tsf; and therefore, must be removed from these foundation location. In addition, it is likely that hard objects might be encountered at the location of B-2; therefore, a spread footing and pedestal type foundation should be installed at this location.

Backfill material around and below the spread footing/pedestal type foundations should consist of NHDOT Item 304.3 (Crushed Gravel) as detailed in the 2010 Edition of the NHDOT Standard Specifications for Road and Bridge Construction. This material should be placed in 8-inch maximum loose lifts and be compacted to at least 95 percent of the materials maximum dry density as determined by ASTM Designation D-1557. Backfilling around the foundation with granular fill material would require that the excavation be sufficiently sloped to conform to OSHA Guidelines Title 29 CFR Subpart P 1926.650. Considering the site constraints, a shoring system may be required where an open excavation is impractical.

The thickness of the fill/disturbed soil layer is on the order of 9.0 feet at the location of test Boring B-3. Thus, excavation below the spread footing bearing depth (i.e. approximately 6.5 feet) will be required at this location. The void must be filled using Crushed Gravel, which is placed in 8-inch thick lifts and compacted to at least 95 percent of the materials maximum dry density, to bottom of footing elevation. Field density tests should be performed in all compacted fill to verify the adequacy of compaction.

To avoid a large excavation that would be created to maintain the required safe slopes, the over-excavation around the drilled pier foundation could be backfilled with lean concrete possessing a compressive strength of 1,000 psi. The concrete backfill material must be cast-in-place in direct contact with undisturbed soil.

The following Table summarizes the depth to the competent Mast Arm foundation bearing stratum (medium dense sand deposits) at the test boring locations:

**DEPTH TO SUITABLE BEARING
LAYER & RECOMMENDED PIER FOUNDATION**

Test Boring No.	Location	Approximate Depth To Suitable Bearing Stratum (medium dense Sand deposits)	Foundation Type
B-1	Intersection of Charron Ave. and Amherst St.	5.0 ft.	Spread Footing/Pedestal
B-2	Intersection of Profile Circle and Amherst St.	3.0 ft.	Spread Footing/Pedestal
B-3	Intersection of Turnpike Plaza Driveway and Amherst St.	9.0 ft.	Spread Footing/Pedestal
B-4	Intersection of Jughandle 1W and Amherst St. (west)	0.5 ft.	Drilled Pier
B-5	Intersection of Jughandle 1W and Amherst St. (east)	0.5 ft.	Drilled Pier

The foundation base soils should consist of firm and stable, naturally occurring medium dense Sand deposits that are free of standing water. A Geotechnical Engineer from MET should inspect the foundation base soils prior to the placement of steel reinforcement steel rebar to verify these conditions are satisfied.

FINAL DESIGN CONSTRUCTION MONITORING

It is recommended that a qualified geotechnical engineer or his/her representative be retained to provide engineering services during the excavation and foundation construction phases of the project. This will become particularly important relative to the inspection and testing of backfill materials and concrete used in construction of the drilled pier elements. This would allow for design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

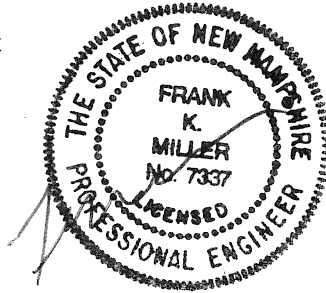
In the event that any changes in the nature, the design, or the location of the mast arms are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of the report modified or verified in writing by Miller Engineering & Testing, Inc.

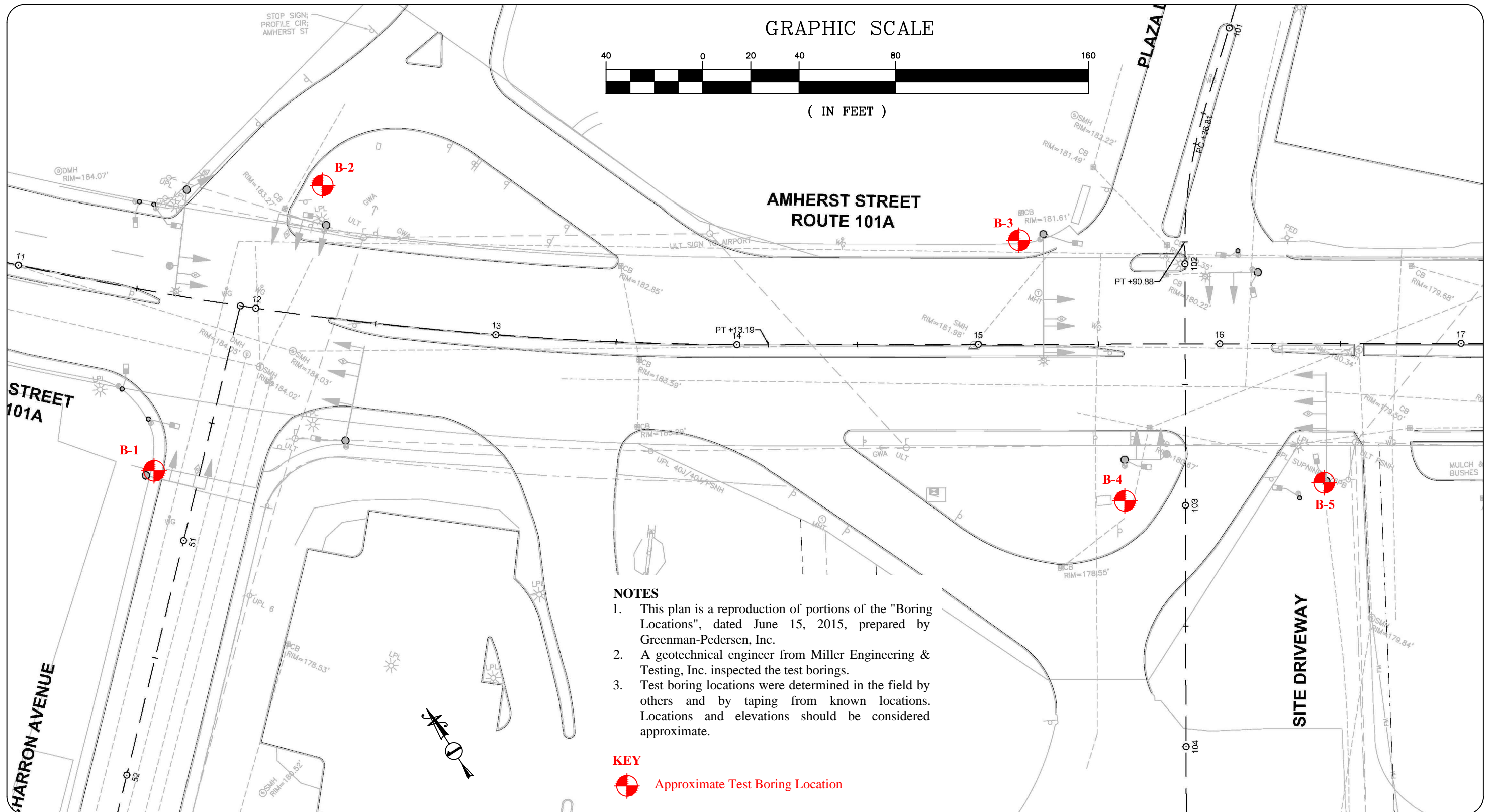

Thank you for this opportunity to be of service on this project. Please call us if you have questions or require additional information.

Very truly yours,
MILLER ENGINEERING & TESTING, INC.



Frank K. Miller, P.E.
Executive Vice President



MILLER ENGINEERING & TESTING, INC.

100 SHEFFIELD ROAD - PO BOX 4776
MANCHESTER, NEW HAMPSHIRE 03108
TEL (603) 668-6016 // FAX (603) 668-8641

Amherst Street/Charron Avenue Mast Arms

Nashua, NH

June 2015

Project No. 15.134.NH

**SUBSURFACE
EXPLORATION
LOCATION PLAN**

FIGURE No.

1

Attachment A

LIMITATIONS

Explorations

1. The analyses, recommendations and designs submitted in this report are based in part upon the data obtained from subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.
2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretation of widely spaced explorations and samples; actual soil transitions are probably more gradual. For specific information, refer to the boring logs.
3. Water level readings have been made in the drill holes at times and under conditions stated on the boring logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, and other factors differing from the time measurements were made.

Review

4. It is recommended that this firm be retained to review final design plans and specifications. In the event that any changes in the nature, design, or location of the structures are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of the report modified or verified in writing by Miller Engineering & Testing, Inc.

Construction

5. It is recommended that this firm be retained to provide soils engineering services during the excavations and foundation construction phases of the work. This is to observe compliance with the design concepts, specifications, or recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

Use of Report

6. This report has been prepared for the exclusive use of the **Greenman-Pedersen, Inc.** for the proposed **Amherst Street Traffic Signal Mast Arms** located in **Nashua, NH** in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.
7. This soil and foundation engineering report has been prepared for this project by Miller Engineering & Testing, Inc. This report was completed for design purposes and may be limited in its scope to prepare an accurate bid. Contractors wishing a copy of the report may secure it with the understanding that its scope is limited to design considerations only.

Attachment B

TEST BORING LOG

MILLER ENGINEERING & TESTING, INC. 100 Sheffield Road - Manchester, NH 03103 Ph. (603) 668-6016 - Fax: (603) 668-8641				Project: Amherst St. / Charron Ave. Nashua, NH		Sheet <u>1</u> of <u>1</u> Boring No: B-1	
				Project No: 15.134.NH		Location: See plan	
Date Start: 06-17-15 Date End: 06-17-15				Approx. Surface Elev: _____			

GROUNDWATER OBSERVATIONS						
	CASING	SAMPLER	Date	Depth	Casing At	Stabilization Period
Type	HSA	SS	06-17-15	10.5		Observed while drilling
Size	2-1/4" ID	1-3/8" ID	06-17-15	12.0	14.0	Upon Completion
Hammer		140 lbs.				
Fall		30"				


Depth/ Elev.	Cas bl/ft	SAMPLE				BLOWS				Strata Change	Sample Description	Notes
		Sample No.	Depth Range	Pen.	Rec.	0-6"	6-12"	12-18"	18-24"			
0		-	0.0-0.5	6							~: Drilled through 6" of concrete	
		S-1	0.5-2.0	18	18		5	6	5		S-1: Brown, dry, loose to medium dense, medium sand, trace fine and coarse sand, trace gravel (FILL)	
		S-2	2.0-4.0	24	13	7	6	2	4		S-2: Dark brown to black, dry, medium dense to loose, fine sand and silt, glass fragments, coal fragments, asphalt fragments, ash, cinders (URBAN FILL)	
4		S-3	4.0-4.5	6	6	5					S-3: Dark brown to black, dry, medium dense to loose, fine sand and silt, glass fragments, coal fragments, asphalt fragments, ash, cinders (URBAN FILL)	
		S-3A	4.5-5.0	6	6		5				S-3A: Dark brown, black, moist, loose silt, trace very fine sand (OLD TOPSOIL LAYER)	
		S-3B	5.0-6.0	12	6			5	4		S-3B: Light brown, loose, moist, fine sand, trace to little silt	
8												
		S-4	9.0-11.0	24	24	3	7	9	23		S-4: Brown, moist to wet, medium dense to dense, fine to medium sand, some coarse sand layers, trace gravel	
12												
		S-5	14.0-16.0	24	24	6	7	6	9		S-5: Brown, wet, medium dense, medium sand with alternating layers of coarse sand and angular gravel	
16												
		S-6	19.0-21.0	24	24	4	5	7	9		S-6: Brown, wet, medium dense, medium to coarse sand with interbedded layers of coarse sand and angular gravel	
20												
											BORING TERMINATED AT 21 ft	
24												

Driller: S. Hollabaugh Helper: B. Carter Inspector: D. Ray	COHESIVE CONSISTENCY (Blows/Foot) 0-2 VERY SOFT 2-4 SOFT 4-8 MEDIUM STIFF 8-15 STIFF 15-30 HARD	COHESIONLESS (Blows/Foot) 0-4 VERY LOOSE 4-10 LOOSE 10-30 MEDIUM DENSE 30-50 DENSE 50+ VERY DENSE	PROPORTIONS USED TRACE: 0-10% LITTLE: 10-20% SOME: 20-35% AND: 35-50%
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NOTES:

REMARKS: THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES. TRANSITION MAY BE GRADUAL. WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THE BORING LOGS. FLUCTUATIONS IN THE LEVEL OF THE GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

TEST BORING LOG

 MILLER ENGINEERING & TESTING, INC. 100 Sheffield Road - Manchester, NH 03103 Ph. (603) 668-6016 - Fax: (603) 668-8641		Project: Amherst St. / Charron Ave. Nashua, NH		Sheet <u>1</u> of <u>1</u> Boring No: B-2	
		Project No: 15.134.NH		Location: See plan	
Date Start: 06-17-15		Date End: 06-17-15		Approx. Surface Elev:	

GROUNDWATER OBSERVATIONS						
	CASING	SAMPLER	Date	Depth	Casing At	Stabilization Period
Type	HSA	SS	06-17-15			Groundwater not observed
Size	2-1/4" ID	1-3/8" ID				
Hammer		140 lbs.				
Fall		30"				

Depth/ Elev.	Cas bl/ft	SAMPLE			BLOWS				Strata Change	Sample Description	Notes
		Sample No.	Depth Range	Pen.	Rec.	0-6"	6-12"	12-18"			
0		S-1	0.0-0.5	6	6	1				S-1: Dark brown, black, dry, loose, silt, trace to little very fine sand, trace fine gravel, roots (TOPSOIL) S-1A: Brown, dry, loose, fine to medium sand, trace coarse sand, trace gravel (FILL) S-2: Brown, dry, medium dense, fine to medium sand, trace to little coarse sand, gravel (FILL)	
		S-1A	0.5-2.0	18	8		4	5	4		
		S-2	2.0-4.0	24	9	6	5	10	17		
4		S-3	4.0-6.0	24	13	24	28	31	27	S-3: Light brown, tan, dry, very dense poorly sorted, fine to coarse sand, gravel, angular rock fragments (TILL)	
8		S-4	10.0-10.4	5	5	50/5				S-4: No sample recovery, spoon bouncing	
12										Auger Refusal at 10.5'	
16										BORING TERMINATED AT 10.5 ft	
20											
24											

Driller: S. Hollabaugh Helper: B. Carter Inspector: D. Ray	COHESIVE CONSISTENCY (Blows/Foot) 0-2 VERY SOFT 2-4 SOFT 4-8 MEDIUM STIFF 8-15 STIFF 15-30 HARD	COHESIONLESS (Blows/Foot) 0-4 VERY LOOSE 4-10 LOOSE 10-30 MEDIUM DENSE 30-50 DENSE 50+ VERY DENSE	PROPORTIONS USED TRACE: 0-10% LITTLE: 10-20% SOME: 20-35% AND: 35-50%
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NOTES:

REMARKS: THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES. TRANSITION MAY BE GRADUAL. WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THE BORING LOGS. FLUCTUATIONS IN THE LEVEL OF THE GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

TEST BORING LOG

MILLER ENGINEERING & TESTING, INC. 100 Sheffield Road - Manchester, NH 03103 Ph. (603) 668-6016 - Fax: (603) 668-8641				Project: Amherst St. / Charron Ave. Nashua, NH		Sheet <u>1</u> of <u>1</u> Boring No: B-3	
				Project No: 15.134.NH		Location: See plan	
Date Start: 06-17-15				Date End: 06-17-15		Approx. Surface Elev:	

GROUNDWATER OBSERVATIONS						
	CASING	SAMPLER	Date	Depth	Casing At	Stabilization Period
Type	HSA	SS	06-17-15	9.0'		Observation while drilling
Size	2-1/4" ID	1-3/8" ID	06-17-15	9.6'	15.0'	Upon Completion
Hammer		140 lbs.				
Fall		30"				

Depth/ Elev.	Cas bl/ft	SAMPLE				BLOWS				Strata Change	Sample Description	Notes
		Sample No.	Depth Range	Pen.	Rec.	0-6"	6-12"	12-18"	18-24"			
0		S-1	0.0-0.5	6	6	3					S-1: Dark brown, black, dry, loose, silt, trace very fine sand, trace fine gravel, roots (TOPSOIL) S-1A: Brown, dry, loose, fine to medium sand, trace coarse sand, trace gravel (GRANULAR FILL) S-2: Brown, dark brown, dry, loose to medium dense, fine to medium sand, trace to little coarse sand, gravel, asphalt fragments (FILL) S-3: Brown, dry, loose, fine to medium sand, trace gravel (FILL) S-4: Light brown, tan, dry, loose, poorly sorted, fine sand (FILL)	
		S-1A	0.5-2.0	18	8		3	3	3			
		S-2	2.0-4.0	24	13	6	3	3	2			
		S-3	4.0-6.0	24	8	1	2	2	1			
4		S-4	6.0-8.0	24	15	1	1	2	3			
		S-5	8.0-10.0	24	22	2	3	4	8		S-5: Light brown, brown, wet, loose to medium dense, fine sand, trace to little silt S-6: Light brown to brown, wet, medium dense to dense, fine sand, trace to little silt S-7: Brown, wet, medium dense, poorly sorted, fine sand S-8: Brown, wet, medium dense to dense, fine sand, trace medium sand, medium to coarse angular gravel (rock fragments) in tip of split-spoon sampler (TILL)	
		S-6	10.0-12.0	24	19	8	12	13	15			
		S-7	14.0-16.0	24	24	7	8	7	7			
	S-8	19.0-21.0	24	24	7	14	17	14				
8												
12												
16												
20												
24												

Driller: S. Hollabaugh Helper: B. Carter Inspector: D. Ray	COHESIVE CONSISTENCY (Blows/Foot) 0-2 VERY SOFT 2-4 SOFT 4-8 MEDIUM STIFF 8-15 STIFF 15-30 HARD	COHESIONLESS (Blows/Foot) 0-4 VERY LOOSE 4-10 LOOSE 10-30 MEDIUM DENSE 30-50 DENSE 50+ VERY DENSE	PROPORTIONS USED TRACE: 0-10% LITTLE: 10-20% SOME: 20-35% AND: 35-50%
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NOTES:

REMARKS: THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES. TRANSITION MAY BE GRADUAL. WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THE BORING LOGS. FLUCTUATIONS IN THE LEVEL OF THE GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

TEST BORING LOG

MILLER ENGINEERING & TESTING, INC. 100 Sheffield Road - Manchester, NH 03103 Ph. (603) 668-6016 - Fax: (603) 668-8641				Project: Amherst St. / Charron Ave. Nashua, NH		Sheet <u>1</u> of <u>1</u> Boring No: B-4	
				Project No: 15.134.NH		Location: See plan	
Date Start: 06-17-15				Date End: 06-17-15		Approx. Surface Elev: _____	

GROUNDWATER OBSERVATIONS						
	CASING	SAMPLER	Date	Depth	Casing At	Stabilization Period
Type	HSA	SS	06-17-15	9.0'		Observation while drilling
Size	2-1/4" ID	1-3/8" ID	06-17-15	12.0'	9.0'	Upon Completion
Hammer		140 lbs.				
Fall		30"				

Depth/ Elev.	Cas bl/ft	SAMPLE				BLOWS				Strata Change	Sample Description	Notes
		Sample No.	Depth Range	Pen.	Rec.	0-6"	6-12"	12-18"	18-24"			
0		S-1	0.0-0.5	6						S-1: Dark brown, black, silt with little fine sand, trace fine gravel, roots (TOPSOIL)	(1)	
		S-1A	0.5-2.0	18						S-1A: Brown, dry, fine sand, trace fine gravel		
		S-2	2.0-4.0	24	20	8	17	18	17	S-2: Light brown, dry, medium dense to dense, fine to medium sand, little coarse sand, some angular gravel (FILL)		
4		S-3	4.0-6.0	24	16	15	19	17	18	S-3: Brown, dry, medium dense to dense, poorly sorted, fine to medium sand, trace sub-rounded gravel		
8		S-4	9.0-11.0	24	15	11	12	12	13	S-4: Brown, wet, medium dense, fine sand and silt, trace medium to coarse sand, gravel, angular rock fragments (TILL)		
12		S-5	14.0-16.0	24	12	25	26	24	16	S-5: Brown, wet, very dense, fine sand and silt, trace medium to coarse sand, gravel, abundant rock fragments (highly foliated schist) (TILL)		
16		BORING TERMINATED AT 16 ft										
20												
24												

Driller: S. Hollabaugh Helper: B. Carter Inspector: D. Ray	COHESIVE CONSISTENCY (Blows/Foot) 0-2 VERY SOFT 2-4 SOFT 4-8 MEDIUM STIFF 8-15 STIFF 15-30 HARD	COHESIONLESS (Blows/Foot) 0-4 VERY LOOSE 4-10 LOOSE 10-30 MEDIUM DENSE 30-50 DENSE 50+ VERY DENSE	PROPORTIONS USED TRACE: 0-10% LITTLE: 10-20% SOME: 20-35% AND: 35-50%
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NOTES: (1) Samples S-1 and S-1A were collected with a shovel. The client requested that the top 2' of B-4 be excavated by hand to verify that there were no buried cables.

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TEST BORING LOG

MILLER ENGINEERING & TESTING, INC. 100 Sheffield Road - Manchester, NH 03103 Ph. (603) 668-6016 - Fax: (603) 668-8641				Project: Amherst St. / Charron Ave. Nashua, NH		Sheet 1 of 1 Boring No: B-5 Location: See plan Approx. Surface Elev:	
				Project No: 15.134.NH Date Start: 06-17-15 Date End: 06-17-15			

GROUNDWATER OBSERVATIONS						
	CASING	SAMPLER	Date	Depth	Casing At	Stabilization Period
Type	HSA	SS	06-17-15	9.0'		Observation while drilling
Size	2-1/4" ID	1-3/8" ID	06-17-15	5.6'	9.0'	Upon Completion
Hammer		140 lbs.				
Fall		30"				

Depth/ Elev.	Cas bl/ft	SAMPLE				BLOWS				Strata Change	Sample Description	Notes
		Sample No.	Depth Range	Pen.	Rec.	0-6"	6-12"	12-18"	18-24"			
0		S-1	0.0-0.5	6	6	3					S-1: Dark brown, black, dry, loose, silt with little fine sand, trace fine gravel, roots (TOPSOIL)	
		S-1A	0.5-2.0	18	14		5	9	10		S-1A: Brown, medium dense, dry, fine to medium sand, trace coarse sand, angular gravel	
		S-2	2.0-4.0	24	16	3	5	6	9		S-2: Light brown, dry, medium dense, fine to medium sand, some coarse sand, gravel (FILL)	
4		S-3	4.0-6.0	24	16	9	10	10	11		S-3: Brown, moist, medium dense, medium to coarse sand, trace fine sand, trace silt, gravel	
8		S-4	9.0-11.0	24	15	13	14	15	14		S-4: Brown, wet, medium dense to dense, fine sand and silt, trace medium to coarse sand, gravel, some rock fragments (highly foliated schist) (TILL)	
12		S-5	14.0-16.0	24	12	12	15	17	34		S-5: Brown, wet, dense, broken rock fragments (highly foliated schist) in a matrix consisting of fine sand and silt (TILL)	
16											BORING TERMINATED AT 16 ft	
20												
24												

Driller: S. Hollabaugh Helper: B. Carter Inspector: D. Ray	COHESIVE CONSISTENCY (Blows/Foot) 0-2 VERY SOFT 2-4 SOFT 4-8 MEDIUM STIFF 8-15 STIFF 15-30 HARD	COHESIONLESS (Blows/Foot) 0-4 VERY LOOSE 4-10 LOOSE 10-30 MEDIUM DENSE 30-50 DENSE 50+ VERY DENSE	PROPORTIONS USED TRACE: 0-10% LITTLE: 10-20% SOME: 20-35% AND: 35-50%
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NOTES:

REMARKS: THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES. TRANSITION MAY BE GRADUAL. WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THE BORING LOGS. FLUCTUATIONS IN THE LEVEL OF THE GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.